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ABSTRACT

The nine lessons and supplementary activities included in this seafood food service program guide are intended for use in secondary and postsecondary occupational home economics food service programs. Material covers nutrition, therapeutic diets, harvesting methods, quality assessment, fish cuts and forms, inspection, dressing, storage, sanitation, preparation, garnishing, menu planning, cost analysis, advertising, and serving. Specific lesson objectives include (1) identification of fish types, cuts, and nutrients: (2) understanding of inspection purposes and techniques: (3) development of skills in purchasing, cleaning, storing, dressing, and preparing fish: (4) developing advertising plans to promote a seafood buffet: (5) evaluating form, taste, and recipes. Each lesson provides for actual hands-on experience in handling fish and such learning activities as exercises, games, puzzles. Tests are included at the end of each lesson, and lists of references and resources are appended. Drawings of fish types and cuts, fishing gear, and inspection seals constitute one-third of the document. Supplementary activities recommended for use with this guide include a field trip (planned in lesson 5) and the utilization of resources persons. (MN)

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SEAFOOD PRODUCTS:

FOOD SERVICE PROGRAM GUIDE

by

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FOREWORD

The Seafood Products: Food Service Program Guide is designed for Occupational Home Economics Food Service programs. These materials were developed by Virginia Polytechnic Institute and State University Home Economics Education staff through a grant from the Department of Commerce (Sea Grant). Home economics teachers in secondary and post-secondary programs in Roanoke, Virginia; Hampton, Virginia; and Mount Joy, Pennsylvania; field tested the materials during the winter of 1979. The field test was designed to include a variety of program levels and emphasis, a broad range of student ages and capabilities, as well as programs in both coastal and non-coastal areas. Revisions incorporating input from both students and teachers were made as needed.

No time designation is made for individual lessons. Instructors should adapt activities to meet their own specific program, whether it be a two-hour or a three-hour block.

It is highly recommended that resource persons be utilized. Persons who are skilled in filleting fish, shucking oysters, picking crab, etc. may be used to supplement the classroom activities. In addition, a field trip is planned (Lesson 5) to provide the students with a view of the seafood business/industry.

The word seafood is used to mean all edible animal foods taken from the water, either saltwater (tuna, mackerel, lobster) or freshwater (crayfish, catfish, rainbow trout). Many seafoods may be taken from both saltwater and freshwater (salmon, shad). Seafoods include two subdivisions: finfish (flounder, trout) and shellfish (oysters, shrimp).

INTRODUCTION

Approximately 70% of all fish and seafood is consumed outside the home. Most restaurants and other food service operations include seafood in their menus. It is therefore appropriate for students in home economics food service programs to be familiar with and competent in the preparation of seafood dishes.

The Food Service Program Guide is designed for Occupational Foods students. Opportunities are presented which culminate in the preparation of a seafood buffet offering a wide variety of dishes which require a number of preparation skills.

CONCEPTS:

Finfish - Shellfish
Nutrition - Therapeutic Diets
Harvesting Methods
Characteristics of Good Quality Fish
Fish Cuts and Forms
Inspection
Dressing Finfish
Storage - Sanitation
Market Forms
Preparing Shellfish
Preparation Methods
Garnishing
Menu Planning
Cost Analysis
Advertising
Holding and Serving Seafood

GENERALIZATIONS:

Seafood may be classified in two main categories: finfish and shellfish.
Finfish and shellfish are an important source of many nutrients in the diet.
Most seafood is appropriate for use in therapeutic diets.
Finfish and shellfish are harvested by a number of commercial methods.
Seafood quality may be evidenced by physical characteristics.
Seafood may be purchased in a variety of cuts and forms which require varying amounts of preparation.
Inspection and grading of seafood is voluntary.
Dressing finfish requires good cleaning practices.
Proper storage of seafood is necessary to maintain quality and to avoid spoilage and food poisoning.
The consumer has a number of market forms available when shopping for seafood.
Shellfish must be properly cleaned before using.
Seafood may be prepared in a variety of ways depending upon the taste desired, individual preferences and the recipe used.
Garnishes may be used to enhance the flavor and appearance of seafood dishes.
Seafood may be used in a variety of appetizing menu plans.
Cost analysis indicates cost-per-serving of a given item.
Advertising, using a variety of media, will increase interest and participation in food service.
Proper holding of seafood for serving is an important aspect of food service establishments.

OBJECTIVES:

Upon completion of this unit, the student will:

1. Given the "Finfish I.D. - I.Q." handout, identify the finfish with 100% accuracy.

2. Orally, or in written form, identify at least three nutrients found in seafood and the function(s) of each with 100% accuracy.

3. Orally, or in written form, identify three commercial means of catching fish. Compare methods for potential damage to fish which would affect the quality of the food product.

4. Given two pictures, one of a fresh fish and one of a fish that is not fresh, identify four characteristis of good quality with 100% accuracy.

5. Identify the fish cuts and forms with 100% accuracy.

6. Given the packages and labels of various seafood products, orally explain the purpose of the inspection stamp and grading seal.

7. Given a fresh fish and appropriate tools, properly clean, dress and store a finfish with a satisfactory rating on all items on the checklist.

8. Given the "Shellfish I.D. - I.Q." handout, identify the shellfish with 100% accuracy.

9. Given the names of five species of shellfish, identify with 90% accuracy two market forms available, one harvesting method and one fact which can be used by the consumer to identify freshness.

10. Given a recipe, fresh shellfish and proper equipment, prepare the shellfish for use in Seafood Buffet dishes.

11. Complete an essay including information on all questions on the Seafood Field Trip form.

12. Given the forms for menu planning, and directions from the instructor, correctly plan a menu for the Seafood Buffet, using at least three of the following types of recipes: appetizer, soup, chowder, casserole, entree, salad, sandwich. All items must receive a satisfactory rating on the checklist.

13. Given the form for cost analysis, recipes and information collected from the field trip and shopping trip, compute cost per serving of the seafood dishes prepared.

14. Complete a unit test with 90% accuracy.

15. Given the recipe, supplies and equipment, properly prepare seafood dishes with appropriate garnishes. All items must receive a satisfactory rating on the checklist.

16. Develop, in writing, an advertising plan to promote the Seafood Buffet using at least three different approaches.

17. Plan and make comment cards to solicit reactions from customers.

18. Given the evaluation form, taste and evaluate all recipes prepared. If served to customers, evaluate customer reaction by talking to customers and compiling results from comment cards.

EVALUATION:

Completed "Finfish I.D. - I.Q." handout
Identification of three nutrients in seafood
Identification of three harvesting methods
Identification of four characteristics of good quality
Identification of the market forms of finfish
Identification of the seals of inspection and their purpose
Completed Finfish Checklist
Completed "Shellfish I.D. - I.Q." handout
Completed "Consumer Information for Shellfish"
Prepared shellfish and completed Shellfish Checklist
Seafood Field Trip essay
Completed Menu Planning Checklist
Completed "Cost Analysis Form"
Unit Test
Written advertising plan promoting Seafood Buffet
Completed comment cards
Completed Seafood Buffet Preparation Checklist
Completed "Seafood Lab Evaluation"

Casting Ahead

Review Bibliography and select references appropriate for your use.

Review Supplemental Activities which follow the daily lesson plans. These may be utilized with students who complete assignments early, desire extra credit or need alternate activities.

Make arrangements for field trip (Lesson 5).

Transparencies or other visuals (see Appendix) should be prepared prior to presentation of these materials.

Seafood purchased for Cleaning and Storage (Lessons 2 and 4) can be used for the Seafood Buffet (Lesson 10). Therefore, purchasing should be planned for the entire unit as opposed to lesson by lesson.

Duplicate "Finfish Crossword Puzzle" and "Finfish I.D. - I.Q" (Lesson 1)

Select appropriate activity for "What Finfish Do You Eat?" and "Finfish Facts." Duplicate if necessary (Lesson 1).

Copy and mount on 3 x 5 cards "Nutrients Charades" strips (Lesson 1).

Identify visuals or reproduce transparencies to show characteristics of good quality fish (Lesson 2).

Collect a variety of seafood packages which have an inspection stamp and grading seal (Lesson 2).

Obtain necessary knives for cleaning and filleting finfish (Lesson 2).

Reproduce "Finfish Checklist" (Lesson 2).

Select appropriate activity for "What Shellfish Do You Eat?" and "Shellfish Facts." Duplicate if necessary (Lesson 3).

Duplicate "Shellfish Crossword Puzzle" and "Shellfish I.D. - I.Q." (Lesson 3)

Reproduce transparency of shellfish: "How to Enjoy Your Delicious Maryland Lobster," "Carolina Way to Enjoy the Blue Crab," and "Consumer Information for Shellfish."

Obtain necessary equipment for cleaning shellfish (Lesson 4)

Reproduce "Shellfish Checklist" (Lesson 4).

Have students copy or reproduce Seafood Field Trip form (Lesson 5).

Reproduce Garnishes handout, Menu Planning Checklist and Market Order Form (Lesson 6).

Duplicate "Cost Analysis Form" and Unit Test (Lesson 7).

Duplicate Seafood Buffet Preparation Checklist (Lessons 8 and 9).

Reproduce "Seafood Lab Evaluation."

Collect comment cards from area restaurants to use as guides for student planning (Lesson 8).

TERMINOLOGY

Finfish

Whole fish

Drawn fish

*Fillet

Butterfly fillet

Steak

Chunk

*Broil

*Bake

*Fry

*Deep-fat fry

*Pan fry

Poach

Steam

Gillnet

Long lining

Purse seine

Trawling

Trammel net set

Scaling

Exoskeleton

Crustacean

Mollusk

Bivalve

Shellfish

Crabpot

Dredge

*Protein

*Carbohydrate

*Fat

*Vitamins

*Minerals

Molt

Lobster pot

Pistol

Otter trawl

Tongs

Sea farming

Pea crab

Basket rack

Adductor muscle

Pusher

*Review words

LESSON 1

CONCEPTS:

Finfish
Nutrition - Therapeutic Diets
Harvesting Methods

OBJECTIVE:

Given the "Finfish ID - IQ" handout, identify the finfish with 100% accuracy.

Teacher Directions

The "Finfish Crossword Puzzle" may be used to assess student knowledge.

Give students "What Finfish Do You Eat?" Have them list finfish eaten by self and/or family. Discuss.

(Alternate activity): Call out name of each fish species. Have students respond in one of the following ways:

a) If you eat it often - raise hand and shake it vigorously
b) Sometimes - raise hand
c) Never - fold arms (Indian style)
d) Tasted but don't like - place hand over mouth

Following response by students after each species, the teacher should also participate (values clarification technique).

Have students read "Finfish Facts" if used as a handout, or discuss the information with the class.

Discussion of finfish:

What are finfish?
How many go fishing? Where?
What kinds of fish are caught?
What do you do with them?
How do you prepare them?
What kinds of fish do you eat at home? In restaurants?
In what market forms do you find fish?
How are finfish cleaned?
What are proper storage procedures to use?

Show and discuss finfish transparencies. (Appendix)

EVALUATION: "Finfish ID - IQ" handout

OBJECTIVE:

Orally, or in written form, identify at least three nutrients found in seafood and the function(s) of each with 100% accuracy.

Teacher Directions

Review nutrition and how it applies to the use of seafood.

a. Food groups

b. Protein, carbohydrates, fat, vitamins and minerals
   1) What does each do (functions)?
   2) What does seafood add to the diet?

c. Daily minimum requirements

d. Deficiencies

e. Review therapeutic diets - low fat, low cholesterol, diabetic, reducing, geriatric. Stress the appropriate use of seafood in each of these diets.

EVALUATION: Oral or written identification of three nutrients and their function(s)

(Alternate Activity): "Nutrient Charades"
Directions: Cut apart the nutrient charade strips and distribute to five class members. Allow about five minutes for students to decide how to pantomime or "act out" the nutrient function. Each of the "actors" will proceed to the front of the class to perform nonverbally while other class members guess which nutrient is being described. Continue until all five nutrients have been used. (Note: This is an especially useful technique for evaluating the non-reader)

OBJECTIVE:

Orally, or in written form, identify three commercial means of catching fish. Compare methods for potential damage to fish which would affect the quality of the food product.

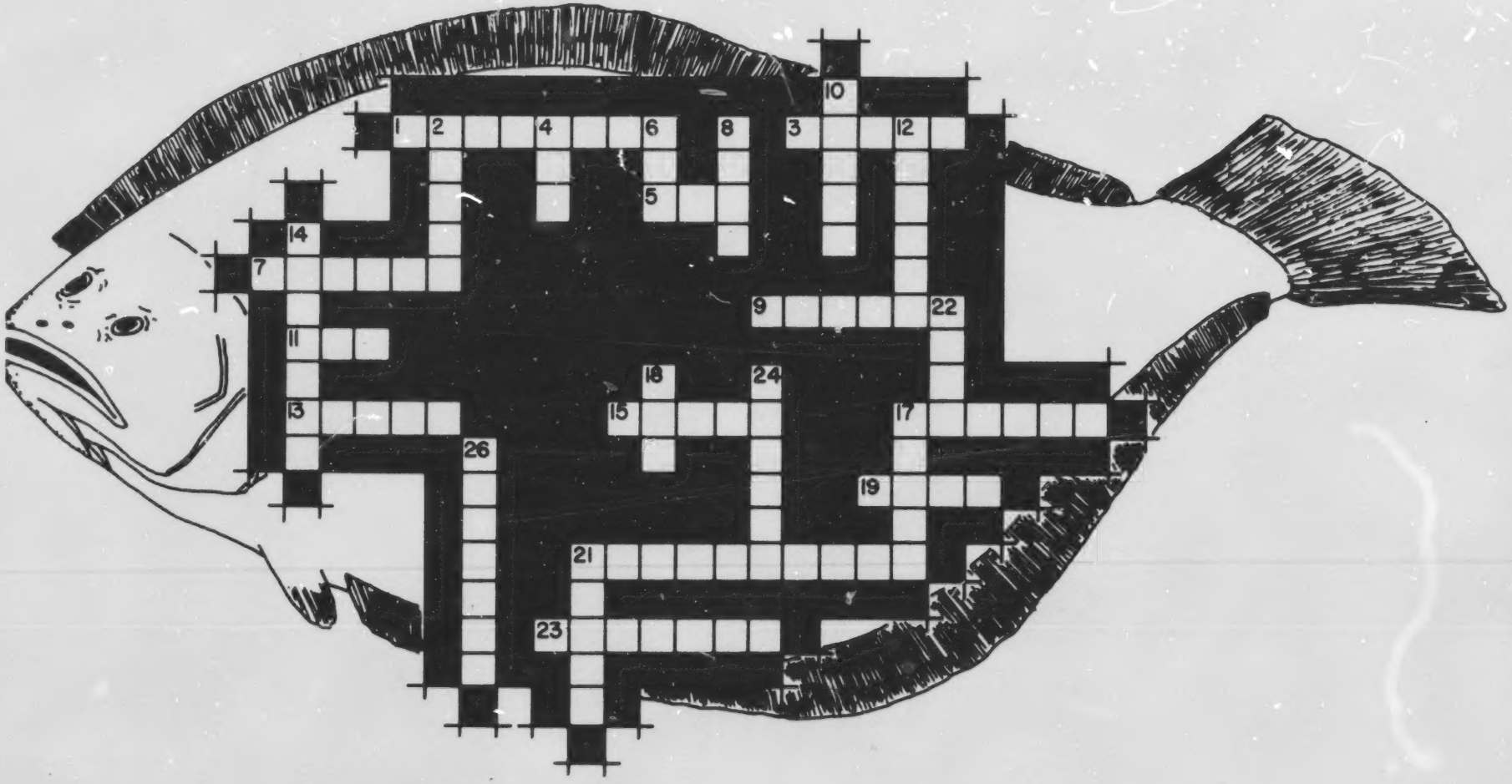
Teacher Directions

Discuss harvesting methods, using either a transparency from material included or a student handout from the same material. (Reference: Seafood Lecture Guide, pp. 10, 16, 20, 25, 31, 36, 75, 76.)

Have students evaluate possible damage to fish related to harvesting.
Examples: Trawling - force of water may cause abrasions and damage.
Gillnets, long lining - fish may die and begin to deteriorate; other fish may chew on and damage dead fish.

EVALUATION: Oral or written identification

FINFISH



FINFISH CROSSWORD PUZZLE

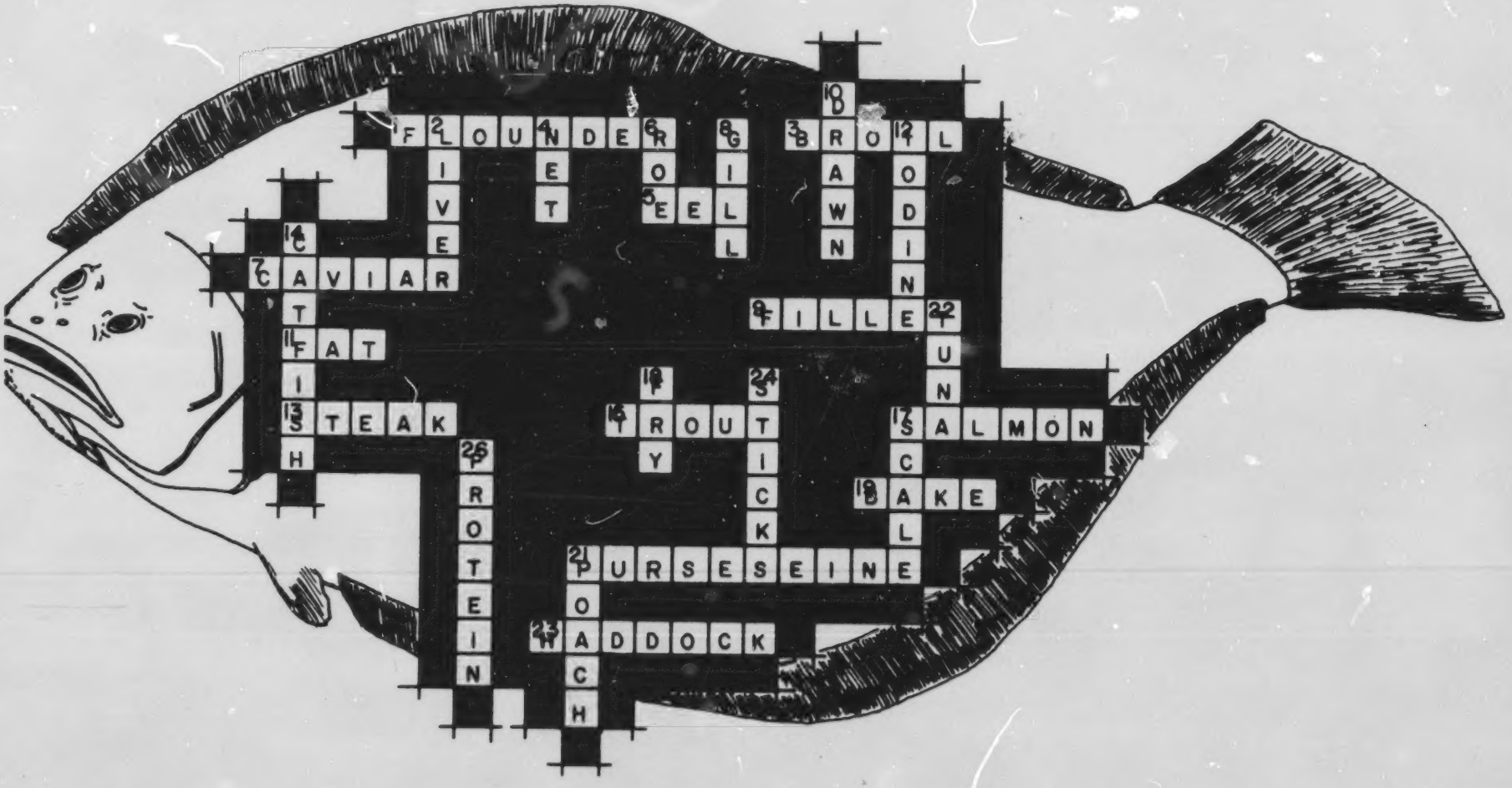
Across

1. A flat saltwater fish that is often stuffed.
3. A preparation method, using direct heat from above or below.
5. A snake-like fish.
7. Processed fish eggs, used as an appetizer, very expensive.
9. A boneless piece of fish.
11. The lack of this ingredient makes seafood valuable in special diets.
13. A cross-section slice of a large round fish.
15. A small freshwater fish, Rainbow ___.
17. A large saltwater fish whose flesh is pink or red.
19. A preparation method using dry oven heat.
21. A method of high seas fishing. (two words)
23. A fish of the cod family.

Down

2. Vitamins A and D found in fish ___ oils.
4. Used to scoop fish from the water.
6. Fish eggs are called ___.
8. Breathing apparatus for finfish.
10. A market form of fish where the insides are removed.
12. Fish is an excellent source of this mineral.
14. A freshwater fish with whiskers.
17. Usually covers outside of fish.
18. Method of preparation: to cook in hot oil or fat.
21. Method of preparation: to cook in simmering liquid.
22. Albacore is a type of ___.
24. A pre-prepared, easy-to-use form of fish.
26. An essential nutrient used for repair of body tissues.

FINFISH


FLOUNDER
FIVE
CAVIAR
FAT
TEAK
H
PROTEIN
NET
EEL
GILL
BROIL
BAWN
ODIN
FILLET
UN
TROUT
TICK
SALMON
SCALLOP
BAKE
PURSESEINE
HADDOCK
CH

FINFISH PUZZLE - KEY

Across

1. Flounder
3. Broil
5. Eel
7. Caviar
9. Fillet
11. Fat
13. Steak
15. Trout
17. Salmon
19. Bake
21. Purse Seine
23. Haddock

Down

2. Liver
4. Net
6. Roe
8. Gill
10. Drawn
12. Iodine
14. Catfish
17 Scale
18. Fry
21. Poach
22. Tuna
24. Sticks
26. Protein

WHAT FINFISH DO YOU EAT?

FINFISH LIST	OFTEN	SOMETIMES	NEVER	TASTED--DON'T LIKE
Anchovies				
Bass				
Blowfish				
Bluefish				
Butterfish				
Carp				
Catfish				
Cod				
Croaker				
Flounder				
Haddock				
Halibut				
Herring				
Perch				
Salmon				
Shad				
Smelt				
Tuna				
Trout				

FINFISH FACTS

The term "fish" is used to describe many aquatic (water) animals, which often do not resemble each other. A fish is cold-blooded, has a backbone, and basic limbs represented by fins. Fish live in water, breathe through gills, and are usually covered with scales or plates.

Fishing was one of man's earliest pursuits, and fish are caught by many methods, ranging from a baited hook to very complex nets.

Fish are readily available in various market forms--fresh, frozen or canned--are nutritious, and can be prepared in many ways.

For the student of occupational food services, it is interesting to note that 70% of all seafood consumed is purchased in a food service establishment. This includes the fast food businesses, such as Long John Silver's, the semi-fast food businesses like Red Lobster and Jolly Fisherman, as well as the more elaborate formal restaurants.

It is important for the student of occupational food service, therefore, to have a knowledge of finfish, methods of selection, cooking, storage and the nutritive values of this important food in the diet. A lack of practical information on this subject has kept fish from becoming a more valuable part of most diets.

There are many edible species, both fresh and salt water varieties. Examples of freshwater fish are: catfish, bass, shad and carp. Some saltwater fish are: mackerel, tuna, cod and herring. Some fish are found in either saltwater or freshwater, such as trout, perch and salmon.

Fish cuts and forms include: whole, drawn, dressed, fillets, steaks, and chunks. Market forms include: fresh, frozen, canned, smoked, and pre-prepared (breaded). Cooking methods are broiling, baking, poaching, steaming, frying and deep-fat frying. In food service preparation, all

of these methods can be used to produce items with customer appeal. Finfish can be served as soups, entrees, salads, and sandwiches.

Fish is high in animal protein and unsaturated fatty acids; without sauces, it is low in calories. It contains many minerals and many of the vitamins in varying amounts, depending on the species and the age of the fish. Fish is especially valuable in low fat, low cholesterol and low calorie diets.

To preserve the quality and taste, good food sanitation practices must be used in the cleaning, storage and preparation of fish.

FINFISH I.D. - I.Q.

I. Define finfish. List two characteristics, and draw one example.

II. Circle the species which are classified as finfish.

HERRING, SHRIMP, CRAYFISH, TROUT

CATFISH, TUNA, SCALLOP, SEA BASS

SALMON, OYSTER, FLOUNDER, LOBSTER

TURTLE, SARDINE, CLAM, CRAB

SHARK, MACKEREL, MUSSEL, CLAM

III. In the space provided, place an F if the species is a finfish.

____ Salmon	____ Blue Crab
____ Flounder	____ Tuna
____ Trout	____ Cod
____ Bay Scallop	____ Gulf Shrimp
____ Sardine	____ Clam
____ Whiting	____ Herring
____ Mussel	____ Lobster

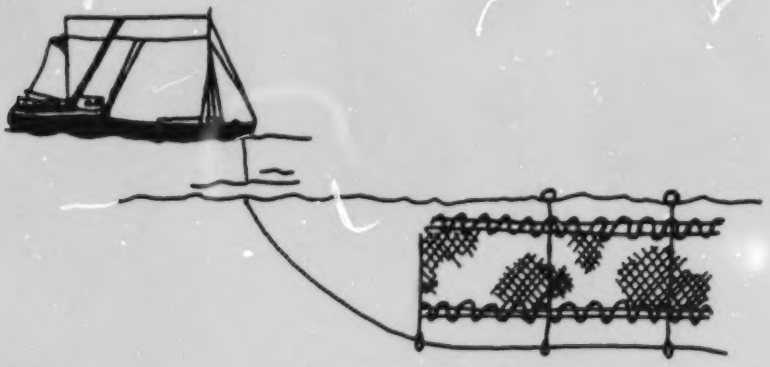
NUTRIENT CHARADES

PROTEIN	I build strong muscles and help to keep your hair shiny and healthy.
NIACIN	I help to build and repair nerve cells and tissues. I also aid in digestion by helping the body use some nutrients for energy.
VITAMIN A	I help you see better at night and also keep your skin smooth and healthy.
VITAMIN D	I am needed for your body to use calcium and phosphorus to build strong bones and teeth. Another name for me is the "Sunshine Vitamin."
IODINE	I am a mineral which helps regulate the thyroid gland and prevent goiters (growths on the neck).

HARVESTING METHODS

1. Gillnets:

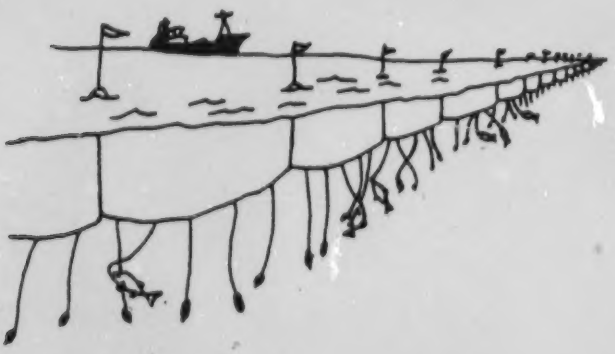
A fish net set upright in the water so that fish swimming into it are tangled by their gills in its net. (static method)



DRIFT OR GILLNETTING

2. Long lining:

A heavy fishing line that may be several miles long and has baited hooks in series. (static method)



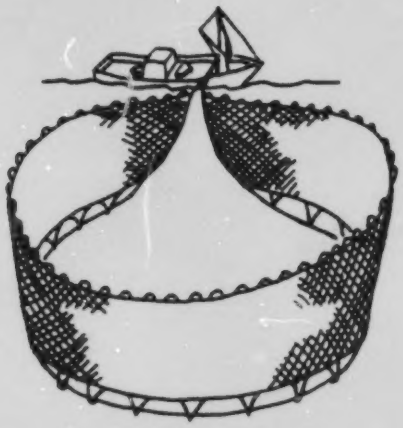
LONG LINING

REFERENCE: The American Heritage Dictionary

HARVESTING METHODS (con't)

3. Purse seine:

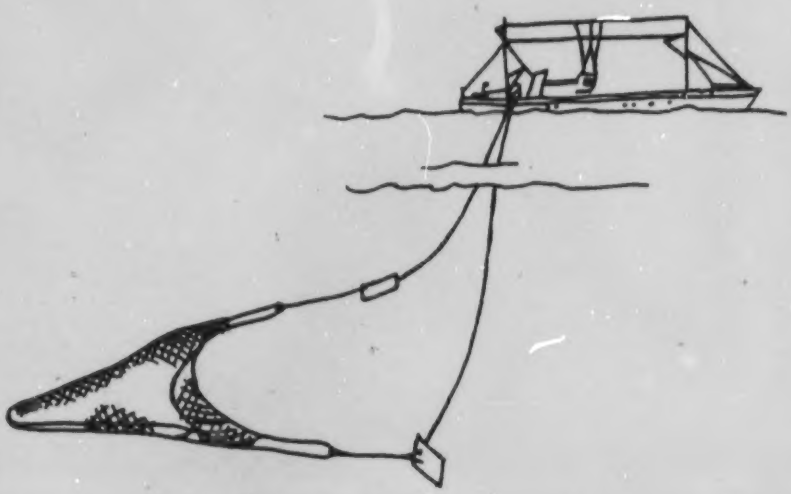
A fishing net that is drawn into the shape of a circle, encircling the catch. (encircling method)



PURSE SEINE

4. Trawling:

A large tapered fish net of conical shape which is towed along the sea bottom. This method is used for catching most species of fish and shrimp. (towing method)



OTTER TRAWLING

LESSON 2

CONCEPTS:

Characteristics of Good Quality Fish
Fish Cuts and Forms
Inspection
Dressing Finfish
Storage - Sanitation

OBJECTIVE:

Given two pictures, one of a fresh fish and one of a fish that is not fresh, identify four characteristics of good quality with 100% accuracy.

Teacher Directions

Discuss characteristics of good quality fish and show transparency or other available visuals (Appendix). (Refer to film bibliography).

EVALUATION: Oral or written identification

OBJECTIVE:

Identify the fish cuts and forms with 100% accuracy.

Teacher Directions

Discuss fish cuts and forms, and show transparencies (Appendix).

EVALUATION: Oral or written identification

OBJECTIVE:

Given the packages and labels of various seafood products, orally explain the purpose of the inspection stamp and grading seal.

Teacher Directions

Discuss inspection of finfish and show transparency (Appendix).

EVALUATION: Give students several packages (seafood products) and have them identify the seals and explain the purpose.

OBJECTIVE:

Given a fresh fish and appropriate tools, properly clean, dress and store a finfish with a satisfactory rating on all items on the checklist.

Teacher Directions

Show and discuss characteristics of freshness in finfish.

Identify and explain the equipment to be used.

Demonstrate scaling, skinning, gilling, eviscerating and filleting a finfish. (Purchase the species you will use for lab preparation - Lesson 10).

Discuss and demonstrate proper storage and sanitation to be used:

a) if fish is to be used within two days;

b) if it is to be held for longer periods. (References: Seafood Lecture Guide, p. 85-94; Experience with Foods, p. 218-221; Foundations of Food Preparation, p. 298-303)

If you use the film "Dressing the Finfish" (VPI), you may wish to stop after each procedure and allow students to follow along.

Have students practice scaling, skinning, gilling, eviscerating, and filleting a finfish.

Have students practice proper sanitation procedures.

Have students wrap and store finfish for later laboratory use according to proper procedures.

EVALUATION: Completed Finfish Checklist

FINFISH CHECKLIST

ACTIVITY	Satis-factory	Unsatis-factory
1. Identified equipment to be used: a. Scaling knife or alternate b. Fillet knife or alternate		
2. Gilled and gutted finfish: a. Cut into area under chin b. Cut belly cavity back to vent fin c. Avoided cutting intestinal tract d. Removed any visible fat e. Removed kidneys and abdominal lining under running water		
3. Scaled and removed fins: a. Used scraping motion from tail to head b. Removed fins by cutting 3/4" along each side c. Pulled fin away, from tail toward head		
4. Skinned fish: a. Cut skin, not flesh, along top of fish and around fins b. Peeled skin away with pliers or fingers		
5. Filleted fish: a. Cut into flesh back of head at 45° angle to backbone b. Turned knife and followed backbone to tail c. Removed rib bones if necessary d. Cut fillet away from tail		
6. Practiced good sanitation techniques throughout procedure.		
7. Prepared fish correctly for storage according to directions given.		

LESSON 3

CONCEPTS:

Shellfish - lobster, shrimp, oyster, clams, scallops, crab and less-often-utilized specialty seafoods
Harvesting Methods
Market Forms
Inspection

OBJECTIVE:

Given the "Shellfish ID - IQ" handout, identify the shellfish with 100% accuracy.

Teacher Directions

The "Shellfish Crossword Puzzle" may be used to assess student knowledge.

Give students "What Shellfish Do You Eat?" and discuss. (For alternate activity, see Lesson 1).

Have students read the "Shellfish Facts" if used as a handout, or discuss the information.

Discussion about shellfish:

What are shellfish?
How many have gone fishing or harvesting crabs-clams-oysters?
Has anyone gone fishing for shrimp or lobsters? In what coastal area did you do this?
What have you done with these items when they are caught?
How can/are they prepared?
In what market forms do you find each of the shellfish?
How are the various shellfish cleaned?
What special storage procedures must be used for shellfish?

EVALUATION: Completed "Shellfish ID - IQ"

OBJECTIVE:

Given the names of five species of shellfish, identify with 90% accuracy two market forms available, one harvesting method and one fact which can be used by the consumer to identify freshness.

Teacher Directions

Using the transparencies (Appendix), discuss lobster, shrimp, oysters, clams, scallops, crab. (References: Seafood Lecture Guide, p. 15-37; Food Preparation for Hotels, Restaurants and Cafeterias, p. 476-479)

a. Harvesting methods
b. Market forms
c. Inspection
d. Storage

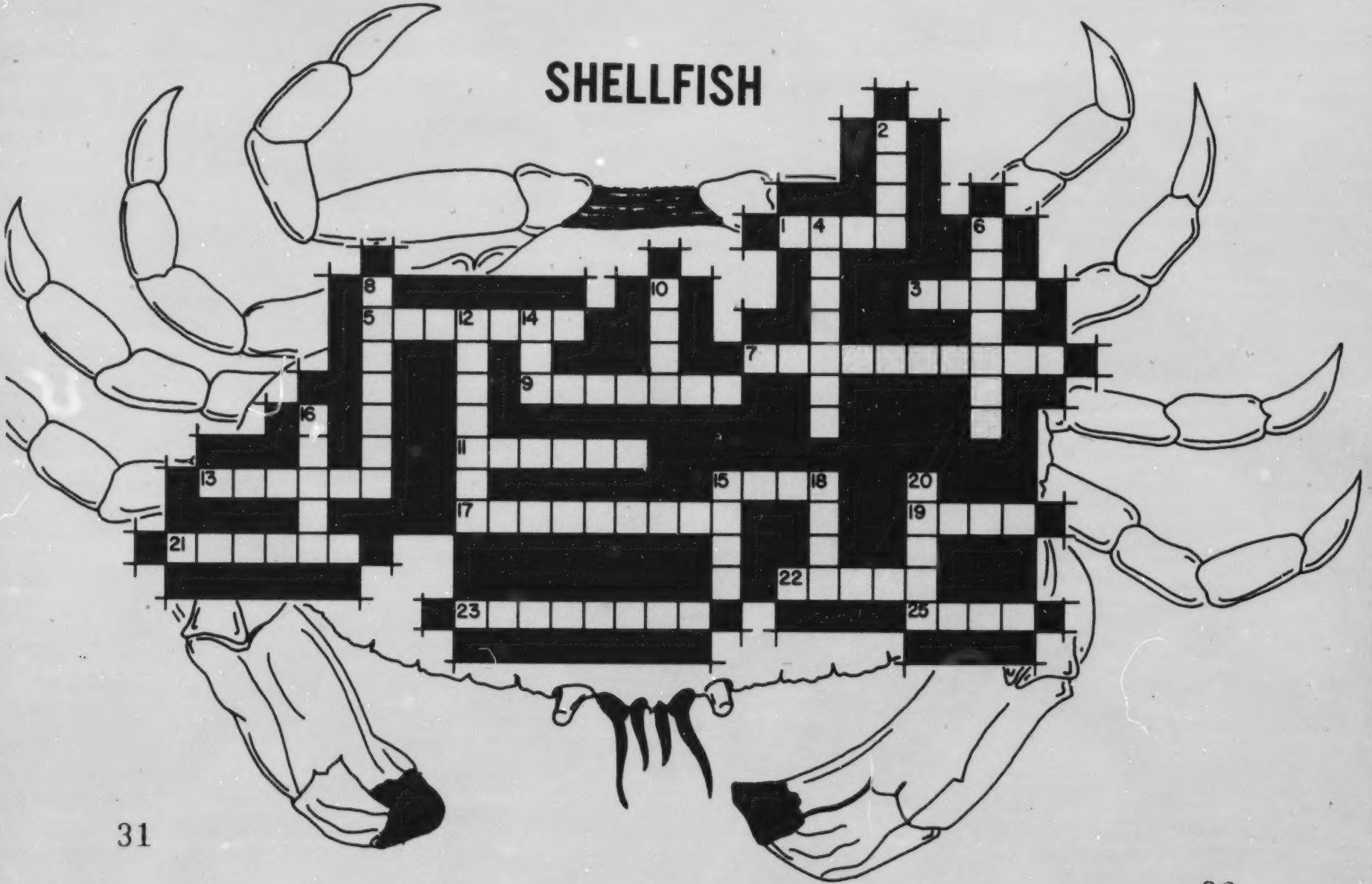
Give students "How to Enjoy Your Delicious Maryland Lobster" and "The Carolina Way to Enjoy the Blue Crab."

For shucking oysters, refer to Food Preparation, p. 464-465, or Cooking for the Professional Chef, p. 162-163 (4th Edition).

Discuss "Less-Often-Utilized Seafoods."

EVALUATION: Correct completion of Consumer Information Sheet

SHELLFISH



SHELLFISH CROSSWORD PUZZLE

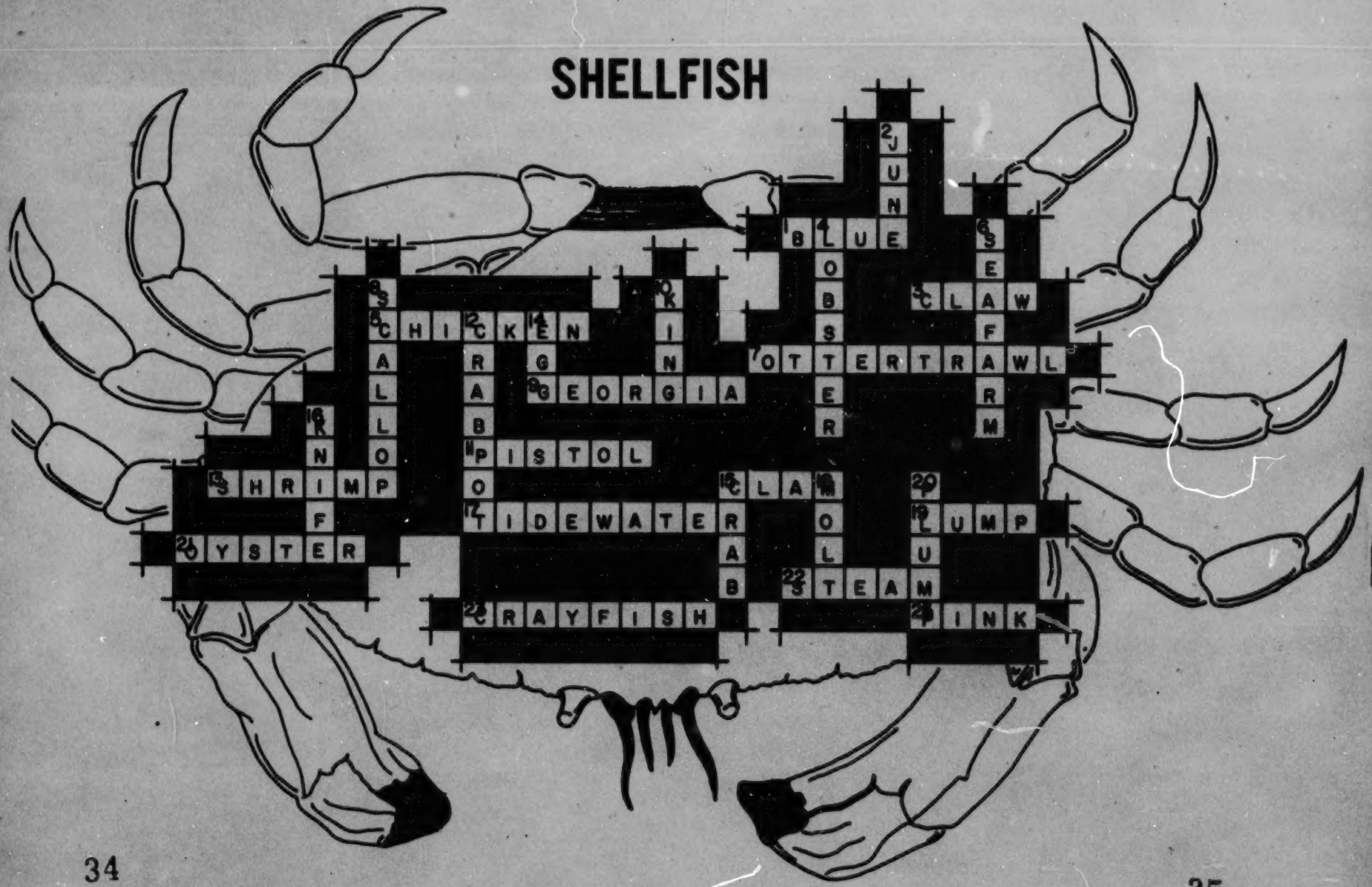
Across

1. The commercial crab found in the Atlantic Ocean from Massachusetts to South America.
3. Large limb of a lobster, used for eating and crushing.
5. A market grade of lobster, one pound or less.
7. Commercial method of harvesting shrimp (two words).
9. Southern state that harvests many shrimp.
11. A live lobster with one limb missing.
13. A jointed crustacean, often served deep-fried or as cocktail.
15. A mollusk used for chowder, New England or Manhattan.
17. The coastal area where freshwater and saltwater meet.
19. Highest quality crab meat.
21. A bivalve mollusk, often used for stew.
22. A cooking method--over boiling water.
23. Resembles a shrimp, eaten in Louisiana.
25. Color of a cooked shrimp or lobster.

Down

2. Myth: Oysters should not be eaten during this month.
4. An expensive crustacean tail, broiled and served with clarified butter.
6. Most oysters are produced by this method (two words).
8. Bay or ocean: only the adductor muscle is eaten by Americans.
10. Largest species of crab, harvested in the Pacific Ocean.
12. A method of harvesting crabs (two words).
14. Pink color in an oyster may be caused by the pea crab's ____.
15. A hard-shelled, broad-bodied crustacean, often served steamed.
16. A piece of equipment used for shucking an oyster or clam.
18. The process whereby a crustacean sheds its tail.
20. Method of adding water to increase the size of this bivalve.

SHELLFISH


JUNE
BLUE
CLAW
CHICKEN
OTTERTRAWL
GEORGIA
PISTOL
SHRIMP
CLAM
TIDEWATER
LUMP
OYSTER
TEAM
RAYFISH
INK

SHELLFISH PUZZLE - KEY

Across

1. Blue
3. Claw
5. Chicken
7. Otter trawl
9. Georgia
11. Pistol
13. Shrimp
15. Clam
17. Tidewater
19. Lump
21. Oyster
22. Steam
23. Crayfish
25. Pink

Down

2. June
4. Lobster
6. Sea farm
8. Scallop
10. King
12. Crab pot
14. Egg
15. Crab
16. Knife
18. Molt
20. Plump

WHAT SHELLFISH DO YOU EAT?

SHELLFISH LIST	OFTEN	SOMETIMES	NEVER	TASTED--DON'T LIKE
Clams				
Crabs				
Soft-shell crabs				
Lobster				
Oysters				
Shrimp				
Caviar				
Crayfish				
Eel				
Frogs' Legs				
Mussels				
Octopus				
Shark				
Snails				
Squid				
Turtle				

SHELLFISH FACTS

Of all seafood, perhaps the most familiar to us are the shellfish. Of the 70% of seafood consumed outside the home, much falls into the shellfish category.

Shellfish are defined as a crustacean (having a hard exoskeleton and jointed limbs) or a mollusk (having a hard shell and no limbs). Crustaceans include crabs, shrimp, lobster; mollusks include oysters, clams and scallops.

Shellfish are available in several market forms, depending upon their use--live, fresh pieces, frozen, cooked, shucked and/or in the shell. Most shellfish are found in saltwater or in the tidewater area (the area where fresh and saltwater meet).

Although we are most familiar with shellfish prepared by deep-fat frying, there are other methods of preparation and the occupational food service student should be aware of these methods. Much of the shellfish purchased for home or commercial use is pre-prepared, but there are other ways of purchasing and preparing shellfish.

Sanitation and storage of shellfish are of utmost importance, as they are highly perishable. Fresh shellfish are at their highest quality within one day of catching.

SHELLFISH I.D. - I.Q.

I. Define shellfish, listing two characteristics of each. Draw two examples.

II. Circle the species which are classified as shellfish.

HERRING, SHRIMP, CRAYFISH, TROUT

CATFISH, TUNA, SCALLOP, SEA BASS

SALMON, OYSTER, FLOUNDER, LOBSTER

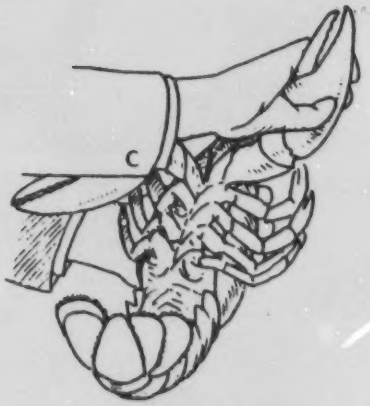
TURTLE, SARDINE, CLAM, CRAB

SHARK, MACKEREL, MUSSEL, CLAM

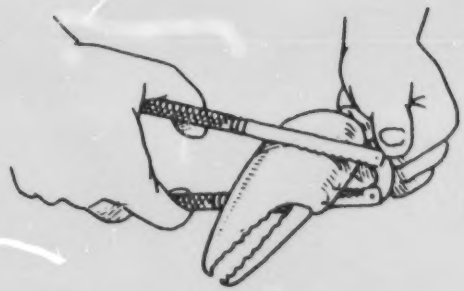
III. In the space provided, place an S if the species is a shellfish.

____ Salmon	____ Blue Crab
____ Flounder	____ Tuna
____ Trout	____ Cod
____ Bay Scallop	____ Gulf Shrimp
____ Sardine	____ Clam
____ Whiting	____ Herring
____ Mussel	____ Lobster

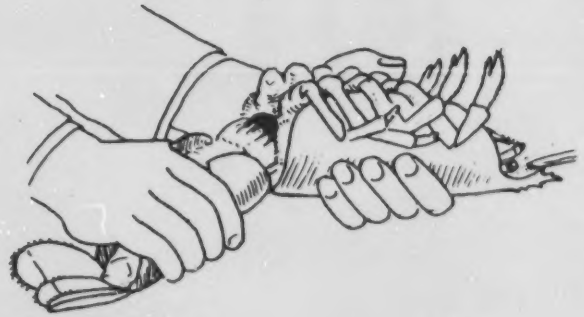
How To Enjoy Your Delicious Maryland Lobster



1. Twist off the claws.

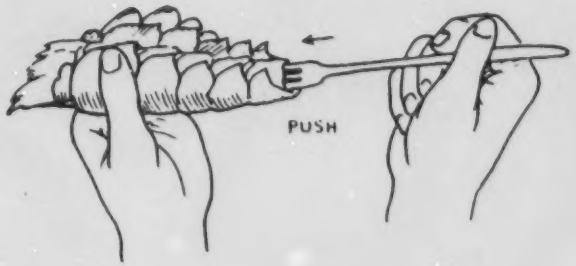


2. Crack each claw with a nutcracker, pliers, knife, hammer, rock or what have you.



3. Separate the tail-piece from the body by arching the back until it cracks.

4. Bend back and break the flippers off the tail-piece.



5. Insert a fork where the flippers broke off and push.

6. Unhinge the back from the body. Don't forget that this contains the "tomalley", or liver of the lobster which turns green when it is cooked and which many persons consider the best eating of all.

7. Open the remaining part of the body by cracking apart sideways. There is some good meat in this section.

8. The small claws are excellent eating and may be placed in the mouth and the meat sucked out like sipping cider with a straw.

For further Information Contact:

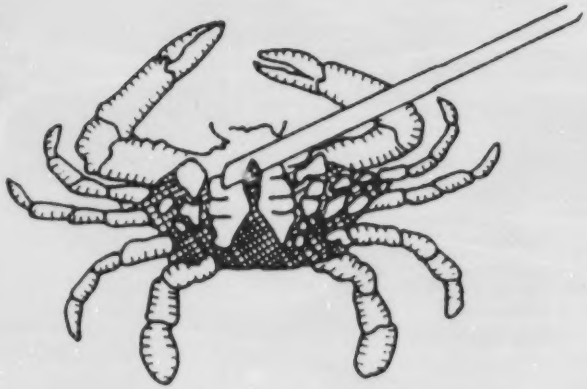
Seafood Marketing Authority

Md. Dept. of Economic & Community Development

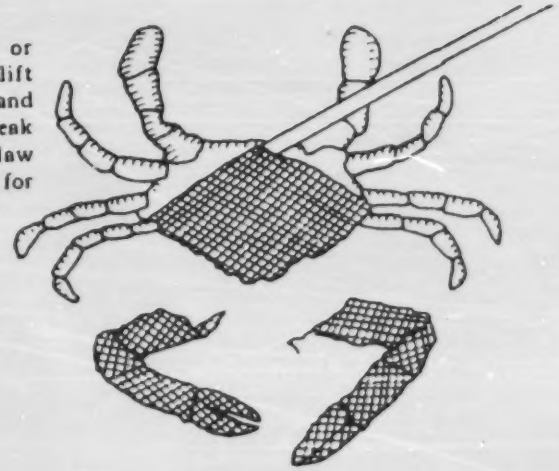
1748 Forest Dr. Annapolis, Md. 21401

THE CAROLINA WAY TO ENJOY A BLUE CRAB

Step 1
With thumb or knife point, pry off apron flap on underside and discard it.

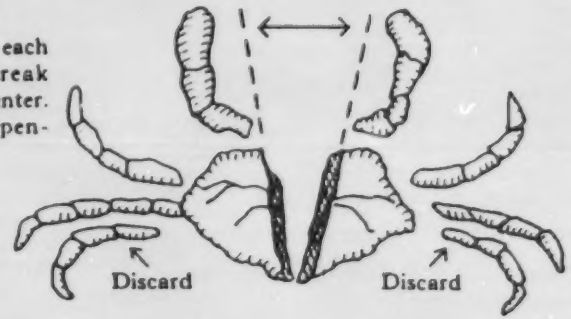


Step 2
With thumb or knife point, lift off top shell and discard it. Break off toothed claw and set aside for eating later.



Step 3
Peel off the "devil fingers"—the long, sponge-like substance on each side. Remove the digestive organs and other parts located in the center of the body. This exposes the hard, semi-transparent membrane covering the edible crabmeat.

Step 4
Hold crab at each side and break apart at center. Discard appendages.



Step 5
Meat under membrane cover in each half of crab can be exposed by removing this cover with knife OR you may slice lengthwise through the center of each half without removing the membrane. Each method will expose large succulent chunks of meat, which may be removed with fingers or knife. Crack large claws with mallet or knife handle to expose meat within.

Source: North Carolina Department of Natural & Economic Resources; Division of Economic Development; Food Industries Development Section; P. O. Box 27687; Raleigh, NC 27611; Phone (919) 829-3760.

LESS-OFTEN-UTILIZED SPECIALTY SEAFOOD

A few other varieties which may be considered seafood can be used in the commercial food service establishment. They include:

1. Caviar: Is the roe, or eggs, of 22 various sturgeons, whose eggs range in color from pearly gray to pale brown. The finest caviar is from the roe of the giant beluga sturgeon and is exported from the Soviet Union and Iran. It is very expensive. Caviar is used primarily for canapes and hors d'oeuvres.

2. Crayfish: Found in quantity in Louisiana and the Pacific Northwest, they are a small, lobster-like crustacean. They range in size from 1 inch to 8 pounds. There are 29 species in Louisiana alone, but only a few grow to edible size. Crayfish farming is becoming popular in some southern states.

3. Eel: Are harvested commercially in the St. Lawrence River, Canada; Cape Charles, Virginia and the Chesapeake Bay. Most are air-lifted to Europe. During colonial days, eel was considered a delicacy, but has since lost favor with all but a few gourmets. It may be pan fried or baked, filleted or pounded flat.

4. Frogs' Legs: Although an amphibian, they are classed as a seafood. Only the hind legs are marketed, and are most plentiful from April to October. Most come from India or Japan, two to three pairs per pound. They are best fried or sauteed and have a delicious, sweet-tasting meat.

5. Mussel: Abundant in New England and eastern Canada, this shellfish has never been as popular in America as in Europe. They are bivalve mollusks. The flavor of the meat is tangy, almost smoky.

6. Octopus: A mollusk, it has a flexible globular body and eight arms. The meat is flavorful and compares to chicken. Not eaten very often in the U.S., perhaps because of the horror movies, it is considered a delicacy elsewhere, especially in the Islands, Japan and Spain.

7. Shark: Is not consumed in the U.S., at least under its correct name. On the East Coast, the blue shark is the source of "swordfish" steaks. The blacktip shark is marketed in Florida as rock salmon and the English "fish 'n' chips" is batter-dipped white shark fillets. The non-use of shark in the U.S. is purely psychological.

8. Snails: A mollusk, this variety lives in a single, spiral shell. Americans are learning to eat this delicacy more and more. Marketed as "escargot," they are an expensive item on the restaurant menu.

9. Squid: A highly specialized mollusk, they have a relatively small market in the U.S. 80% of the squid is edible and contains 18% protein. It is one of the most abundant seafoods, but greatly under-utilized. Small squid are stuffed and cooked whole, large ones are cut in rings and pieces.

10. Turtle: Ranging from 4 to 25 pounds, live turtles are butchered immediately and often frozen for fall and winter use. Its exotic flavor is known by gourmets the world over. Most edible turtles are either endangered or threatened species.

CONSUMER INFORMATION FOR SHELLFISH

SPECIES	MARKET FORMS (2)	HARVESTING METHOD (1)	INDICATION OF GOOD QUALITY (1)
Clam	1) 2)	1)	1)
Crab	1) 2)	1)	1)
Lobster	1) 2)	1)	1)
Scallops	1) 2)	1)	1)
Shrimp	1) 2)	1)	1)
Oyster	1) 2)	1)	1)

LESSON 4

CONCEPTS:

Shellfish - lobster, shrimp, oyster, clam, scallop, crab, and less-often utilized seafood
Preparing shellfish
Storage

OBJECTIVE:

Given a recipe, fresh shellfish and proper equipment, prepare the shellfish for use in Seafood Buffet dishes.

Teacher Directions

Demonstrate (or have an outside resource person demonstrate) shucking clams and oysters, picking crab, deveining shrimp, and cracking lobster.

Show and discuss equipment used:

a. to shuck oysters and clams (clam or oyster knife)
b. to pick a crab (grapefruit knife)
c. to devein a shrimp (paring knife)
d. to crack a lobster (nutcracker)

Discuss and demonstrate characteristics of good quality in raw and cooked shellfish.

Discuss and demonstrate good sanitation techniques.

Demonstrate storage techniques to use for shellfish.

Have students practice preparing the shellfish and storing the shellfish for use in preparation of the Seafood Buffet.

EVALUATION: Prepared shellfish and completed Shellfish Checklist

OPTIONAL:

Demonstrate the cooking of a live lobster (chicken lobster, if available) and picking the meat.

SHELLFISH CHECKLIST

ACTIVITY	Satis-factory	Unsatis-factory
1. Shucked clam(s) a. Washed thoroughly, removed broken or dead ones b. Held clam in palm with hinge against palm c. Inserted clam knife between halves of shell and cut around, twisting to open d. Cut muscle free from shell		
2. Shucked oyster(s) a. Washed thoroughly, removed broken or dead ones b. Billed the edges of the shell with a hammer c. Inserted clam knife between halves of shell and cut around, twisting to open d. Cut muscle free from shell		
3. Deveined shrimp a. Removed shell (and tail if so instructed) b. Inserted knife at back and cut down toward tail c. Removed dark vein without waste		
4. Practiced good sanitation procedures throughout procedure.		
5. Prepared seafood correctly for storage according to directions.		

LESSON 5

CONCEPTS:

Finfish and Shellfish
Characteristics of Good Quality
Market Forms
Storage - Sanitation

OBJECTIVE:

Complete an essay including information on all questions on the Seafood Field Trip form.

Teacher Directions

Review market forms: fresh, frozen, canned, etc.

Discuss information to be collected during the field trip. (See Seafood Field Trip form.)

Conduct a field trip to a local seafood market or store where various market forms are available.

Assign students the Field Trip report to be completed by the next class meeting.

EVALUATION: Essay on field trip

SEAFOOD FIELD TRIP

Name _____ Date _____

Class or Grade _____

Name of store or market visited _____

In essay form, answer the following questions. You may add other information you collect.

1. Where is the seafood purchased?

2. What fish cuts and forms are available?

3. What market forms of finfish and shellfish are available?

4. Name some species of finfish and shellfish sold.

5. What percentage or amount of the seafood is sold wholesale? Retail?

6. What questions are most often asked by consumers about preparation of seafood?

SEAFOOD FIELD TRIP (con't)

7. List cost per pound of at least five items sold.

8. What precautions are taken to insure good quality and food sanitation?

9. Is the business inspected? By whom? How often?

10. How many persons are employed? Briefly describe their job tasks.

LESSON 6

CONCEPTS:

Preparation Methods
Garnishing
Menu Planning

OBJECTIVE:

Given the forms for menu planning, and directions from the instructor, correctly plan a menu for a Seafood Buffet, using at least three of the following types of recipes: appetizer, soup, chowder, casserole, entree, salad, sandwich. All items must receive a satisfactory rating on the checklist.

Teacher Directions

Discuss and/or demonstrate preparation methods that can be used for seafood. (References: Food Preparation for Hotels, Restaurants and Cafeterias, p. 47-49, 480-500; Seafood Lecture Guide, p. 101-148; Exploring Professional Cooking, p. 226-229.)

Distribute copies of "Garnishes" to each student.

Refer to the handout and discuss garnishing and sauces to use with seafood. (References: Seafood Lecture Guide, p. 147-149; Fish and Seafood Dishes for Food Service Menu Planning, p. 215-230.)

Review steps and concepts to be used in planning menus.

Using menu planning form, have students plan a Seafood Buffet menu to be served to faculty and/or students.

a. Use a variety of products - include fish and seafood from lessons 2 and 4.
b. Use a variety of preparation methods.

Have students also plan: number of servings needed, garnishes, vegetables and dessert.

Have students prepare a market order for the menu planned. Check and correct the market order.

EVALUATION: Completed Menu Planning Checklist

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Have students prepare a market order for the menu planned. Check and correct the market order.

EVALUATION: Completed Menu Planning Checklist

GARNISHES

To a great extent we eat with our eyes, and an effective garnish has eye-catching appeal.

A. Sprinkle on:

1. Sauteed slivered almonds
2. Chopped parsley
3. Grated cheese
4. Sauteed coconut
5. Capers
6. Bits of bacon
7. Chopped chives
8. Paprika
9. Strips of pimiento
10. Sauteed chopped ripe olives
11. Crumbled bleu cheese
12. Sauteed herb-flavored crumbs
13. Snipped fresh dill
14. Sieved hard-cooked egg yolks
15. Thin slices of lemon/lime

B. On the plate:

1. A wedge of lemon
2. A wedge of lemon dipped in paprika
3. A wedge of lemon dipped in chopped parsley
4. A wedge of lime
5. Fresh watercress
6. Slices of cucumber
7. Fresh parsley
8. Carrot curls
9. Pickle fans
10. Slices of pickled beets
11. Grilled tomato half
12. Cherry tomatoes
13. Sauteed mushrooms
14. Spiced peach half
15. Corn relish
16. Pineapple slice
17. Thin orange slices
18. Mold of aspic
19. Broiled orange and grapefruit sections
20. Bunch of green grapes

C. Sauces:

1. Tartar
2. Lime cocktail
3. Cocktail
4. Cheddar cheese
5. Onion
6. Sweet and sour
7. Ripe olive tartar
8. Hot tartar
9. Seasoned lemon butter
10. Tomato
11. Hollandaise
12. Sour cream dill

MENU PLANNING CHECKLIST

ACTIVITY	Satis-factory	Unsatis-factory
1. Selected foods to include each area of the Basic 4 food groups.		
2. Selected menu offerings according to basic menu planning techniques: a. balance b. color c. texture d. preparation methods e. garnishes		
3. Selected menu offerings according to the specific assignment given.		
4. Based menu plan on the specific amount of money to be used per person.		
5. Planned preparation method to be used for specific assignment (if applicable).		
6. Planned menu which could be prepared in time available.		
7. Considered equipment available for preparation.		
8. Wrote menu according to proper form.		

Class period _____ Date _____

Students' Names _____

Fish:	Grains:
Dairy Products:	Canned Foods:
Fresh Fruits and Vegetables:	Miscellaneous:

LESSON 7

CONCEPT:

Cost Analysis

OBJECTIVE:

Given the form for cost analysis, recipes and information collected from the field trip and shopping trip, compute cost per serving of the seafood dishes to be prepared.

Teacher Directions

Have students shop for items needed for Seafood Buffet, using corrected market order form.

Have students record prices of each item purchased or to be used and compute cost analysis for all recipes.

EVALUATION: Completed "Cost Analysis Form"

OBJECTIVE:

Complete a unit test with 90% accuracy.

Teacher Directions

Review with students: terminology and information from this unit.

Have students take the unit test. Key is included in this material. (Choice for non-readers: can take the evaluation post-test either verbally or taped.)

EVALUATION: Unit Test

COST ANALYSIS

ITEM	INGREDIENT	COST PER INGREDIENT	TOTAL ITEM COST	COST PER SERVING (total cost ÷ no. of servings)

UNIT TEST: SEAFOOD

Identification: Each of the following is an item related to or characteristic of seafood. Mark each item either F for finfish or S for shellfish.

1. ____ Crab
2. ____ Exoskeleton
3. ____ Flounder
4. ____ Haddock
5. ____ Pectoral fin
6. ____ Gill
7. ____ Lobster
8. ____ Stalked eyes
9. ____ Purse seine
10. ____ Clam
11. ____ Mollusk
12. ____ Scale
13. ____ Crustacean
14. ____ Lump meat
15. ____ Steak
16. ____ Otter trawl
17. ____ Shrimp
18. ____ Drawn
19. ____ Pistol
20. ____ Tuna

True-False: Tbe following statements are either true or false. Mark each statement + for TRUE, 0 for FALSE. If the statement is false, correct it.

_____ 1. Most oysters are harvested by sea farming.

_____ 2. The crab meat often used for food in the eastern United States is the Jonah crab.

_____ 3. The shrimp is a jointed crustacean.

_____ 4. The largest crab used for food is the blue crab.

_____ 5. Two types of lobster used for food are the squid and the spiny.

_____ 6. Seafood is high in digestible protein and low in fat compared to red meats.

_____ 7. Sauces and butters served with seafood tend to increase the calorie content.

_____ 8. Crabs and oysters are examples of mollusks.

_____ 9. There are many species of finfish and shellfish that could be used for food and are not eaten by the American consumer.

_____10. Seafood is high in the mineral B_{12}.

Matching: Place the letter from the right column in front of the item in the left column which best matches that item.

____ 1.	A market grade of lobster.	A. Adductor Muscle
____ 2.	The best grade of crab meat.	B. Bake
____ 3.	A cooking method over boiling water.	C. Catfish
____ 4.	A boneless piece of fish.	D. Clam
____ 5.	A mollusk.	E. Deep-fat Fry
____ 6.	A crustacean.	F. Drawn
____ 7.	The "eye" of the scallop.	G. Fillet
____ 8.	A good reason for using seafood on a special diet.	H. Iodine
		I. Low-fat Content
____ 9.	A method of harvesting oysters.	J. Lump
____10.	A market form of fish with the entrails removed.	K. Pan Fry
____11.	Fish eggs, like caviar.	L. Pistol
____12.	A cooking method by covering with hot fat.	M. Poach
		N. Roe
____13.	A mineral in seafood that prevents goiters.	O. Shrimp
____14.	A market form of round fish.	P. Soft-shell
____15.	A crab that is molting.	Q. Steak
		R. Steam
		S. Tongs

UNIT/POST-TEST: SEAFOOD - KEY

Identification:

1. S
2. S
3. F
4. F
5. F
6. F
7. S
8. S
9. F
10. S
11. S
12. F
13. S
14. S
15. F
16. F or S
17. S
18. F
19. S
20. F

True-False:

1. +
2. 0 (Blue)
3. +
4. 0 (King)
5. 0 (Maine)
6. +
7. +
8. 0 (Clams)
9. +
10. 0 (Iodine)

Matching:

1. L
2. J
3. R
4. G or Q
5. D
6. O
7. A
8. I
9. S
10. F
11. N
12. E
13. H
14. Q or G
15. P

LESSON 8

CONCEPTS:

Preparation Methods
Advertising

OBJECTIVE:

Given the recipe, supplies and equipment, properly prepare seafood dishes with appropriate garnishes. All items must receive a satisfactory rating on the checklist.

Teacher Directions

Have students do all pre-preparation possible for the Seafood Buffet.

EVALUATION: Seafood Buffet Preparation Checklist (see Lesson 9).

OBJECTIVE:

Develop, in writing, an advertising plan to promote the Seafood Buffet using at least three different approaches.

Teacher Directions

Have students develop a plan for promoting the Seafood Buffet to include activities such as:

advertising in school paper
bulletin boards
posters
a display case
sandwich boards
announcements on P/A system

(Reference: Seafood Manual for School Food Service Personnel, p. 24-26.)

EVALUATION: Written advertising plan

OBJECTIVE:

Plan and make comment cards to solicit reactions from customers.

Teacher Directions

Discuss the purpose of comment cards.

Have students select a format and make comment cards.

EVALUATION: Completed comment cards

LESSON 9

CONCEPT:

Holding and Serving Seafood

OBJECTIVE:

Given the recipe, supplies and equipment, properly prepare seafood dishes with appropriate garnishes. All items must receive a satisfactory rating on the checklist.

Teacher Directions

Have students prepare items for the Seafood Buffet. Observe techniques used in preparation and sanitation.

Have students set up buffet table. (Reference: Catering Handbook, p. 108-112; Exploring Careers in Hospitality and Food Services, p. 123.)

EVALUATION: Completed Seafood Buffet Preparation Checklist

OBJECTIVE:

Given the evaluation form, taste and evaluate all recipes prepared. If served to customers, evaluate customer reaction by talking to customers and compiling results from comment cards.

Teacher Directions

Taste and evaluate recipes prepared, using the lab evaluation form.

Have students discuss the Seafood Buffet and compile comments from comment cards.

EVALUATION: Completed lab evaluation and summarized customer comments

SEAFOOD BUFFET PREPARATION CHECKLIST

ACTIVITY	Satis-factory	Unsatis-factory
1. Used the appropriate equipment.		
2. Used proper supplies and food items.		
3. Handled food in a sanitary manner.		
4. Used correct cooking temperature.		
5. Put away all supplies after they were used.		
6. Served food at correct temperatures.		
7. Served food attractively.		
8. Arranged food according to type of service.		
9. Shellfish prepared properly.		
10. Fish are moist, flake easily and have desired color.		
11. Cleaned equipment thoroughly.		

SEAFOOD LAB EVALUATION

RECIPE NAME	TYPE OF SEAFOOD PREPARED	METHOD OF PREPARATION	DESCRIBE TASTE: Delicate flavor Strong fish taste/odor Well-seasoned Salty or flat (choose one or more which describes the taste)	HOW DO YOU LIKE IT? 1-I will never eat it again! Yuk! 10-I loved it! Yum! (rate on a scale of 1-10)
Group 1				
Group 2				
Group 3				
Group 4				
Group 5				

SUPPLEMENTAL ACTIVITIES

SEAFOOD RIDDLES

On 3 x 5 cards, type the following clues. Have two students act out the clues on each card, while the other students identify the item. Give clues one at a time.

1. I am a broad-bodied crustacean.
   I have four pairs of legs.
   I am a giant in the Pacific Ocean.
   I sometimes grow to kingly size.
   (Crab)

2. I have two claws; one for crushing, one for eating.
   I am a primary product of Maine.
   When cooked I turn red.
   I am very expensive.
   (Lobster)

3. I have stalked eyes.
   I have a hinged exoskeleton.
   I am found in large numbers in Georgia.
   I turn pink when cooked.
   (Shrimp)

4. I am a cold-blooded animal.
   I live in the water
   I breathe through my gills.
   I am one of man's earliest forms of food.
   (Fish)

5. I am a cut or form of finfish.
   I have no bones.
   I broil quickly.
   I can be made from a flat or round fish.
   (Fillet)

6. I am high in digestible protein.
   I am low in fat.
   I contain many vitamins and minerals.
   I am an excellent choice for special diets.
   (Seafood)

7. I am a form of live lobster.
   I weigh about one pound.
   In some restaurants, I can be chosen from a tank.
   I am probably the most used form of live lobster.
   (Chicken Lobster)

8. I am a form of crustacean.
I have a globular body.
I have eight arms.
I am not eaten as food in the U.S.
(Octopus)

9. I am a mollusk
I have one special shell.
I am considered a delicacy by some.
I am on menus as "escargot."
(Snail)

10. I am a bivalve mollusk.
I am produced commercially by sea farming.
I am often sold in restaurants "on the half shell."
I am less plentiful in summer months.
(Oyster)

11. I am a large saltwater fish.
I am sold in cans and as steaks.
I am used for sandwiches and salads.
I want to belong to Starkist.
(Tuna)

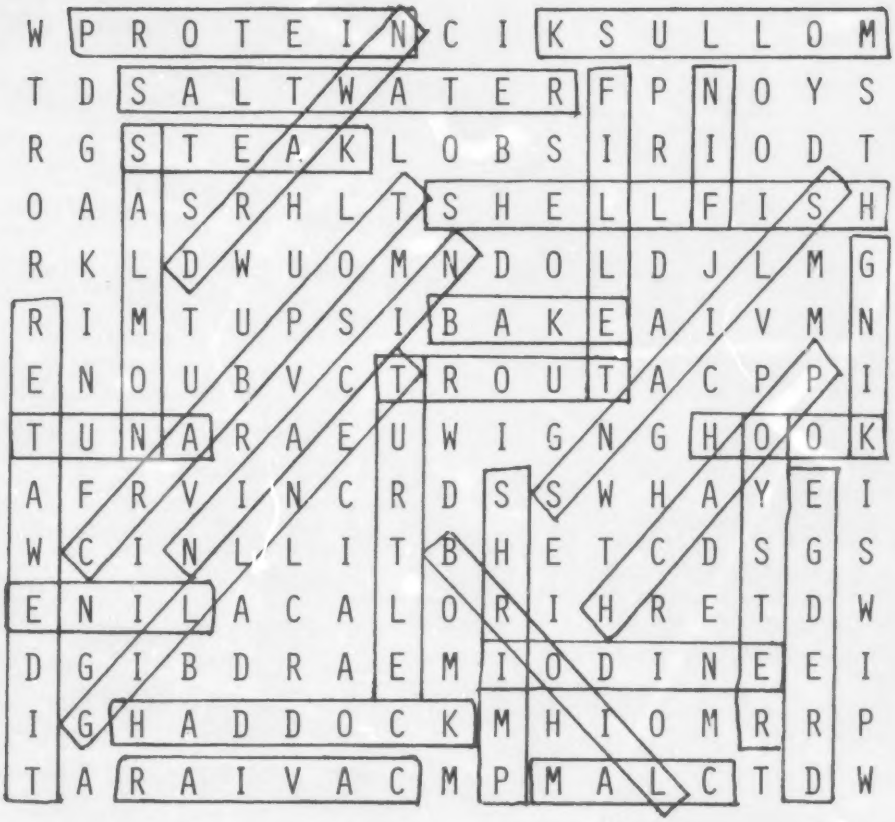
12. I am a flat saltwater fish.
Both eyes are on top of my body.
I am often stuffed with crabmeat.
I am an easy fish to fillet.
(Flounder)

WORD SEARCH

W P R O T E I N C I K S U L L O M
T D S A L T W A T E R F P N O Y S
R G S T E A K L O B S I R I O D T
O A A S R H L T S H E L L F I S H
R K L D W U O M N D O L D J L M G
R I M T U P S I B A K E A I V M N
E N O U B V C T R O U T A C C P I
T U N A R A E U W I G N G H O O K
A F R V I N C R D S S W H A Y E I
W C I N L L I T B H E T C D S G S
E N I L A C A L O R I H R E T D W
D G I B D R A E M I O D I N E E I
I G H A D D O C K M H I O M R R P
T A R A I V A C M P M A L C T D W

SHRIMP
DREDGE
CRABPOT
GILLNET
LINE
HOOK
TIDEWATER
HADDOCK
TUNA
SNAILS
TURTLE
MOLLUSK
SHELLFISH
OYSTER
PROTEIN
NIACIN
FIN
TROUT
DRAWN
STEAK
SALMON
BAKE
FILLET
CAVIAR
POACH
BROIL
IODINE
SALTWATER
KING
CLAM

WORD SEARCH KEY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O A A S R H L T S H E L L F I S H
R K L D W U O M N D O L D J L M G
R I M T U P S I B A K E A I V M N
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A F R V I N C R D S S W H A Y E I
W C I N L L I T B H E T C D S G S
E N I L A C A L O R I H R E T D W
D G I B D R A E M I O D I N E E I
I G H A D D O C K M H I O M R R P
T A R A I V A C M P M A L C T D W

CAPTAIN'S MATCH

(Based on the television show "Match Game")

Directions:

Divide students into teams of seven. Two students will be contestants, one will be the M.C. and four will be the panelists. Depending on the size of the class, the number of panelists could be expanded to six.

Questions are written out on cards and labeled "A" or "B". Each contestant chooses a question. The M.C. reads the question to the group. Each panelist writes an answer to the question on a card before the contestant verbally gives an answer.

Both contestants answer a question to see how many of the panelists they can match. The contestant who matches the most answers becomes the M.C., the M.C. becomes a panelist, and the panelists becomes a contestant. Use a notation system so all have a chance in each area.

Sample questions are included, but a good enrichment activity would be to have each student write out a question and answer before forming teams. Expand sample questions as needed.

Sample questions: (Expand as needed)

1. Charlie Tuna said: The mineral found in fish which prevents goiter is ____. (iodine)

2. The dietitian says that fish is especially useful in ____ diets. (low fat, low cholesterol)

3. One of the characteristics of good quality is ____. (clear eyes; bright red gills; bright, tight scales; fresh odor)

4. Cutting a boneless piece of flesh from a fish is called ____. (filleting)

5. A live lobster with one claw missing is called a ____. (pistol)

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Tronc, Janice K. and Judy Appert. "How to Use the Comparison Cards to Learn which Foods are Best." Champaign-Urbana, Illinois: Division of Home Economics Education, University of Illinois.

Watt, Bernice K. and Annabel L. Merrill. Composition of Foods: Raw, Processed, Prepared. Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture Reprint. 1975.

FREE FILM BIBLIOGRAPHY

Association Films, Inc.
600 Grand Avenue
Ridgefield, NJ 07657

"Fishermen from Urk" - 23 minutes, color
Urk, Netherlands' fishing fleet.

"Fishing Safari" - 25 minutes, color
Fishing in Quebec, meal prepared by Indian guides.

"Fresh is Best" - 14 minutes, color
A comprehensive introduction to availability and uses of New England seafood.

"Harvest from the Sea" - 28 minutes, color
Fishing in the Republic of China; fish hatcheries.

"Island of Hope" - 18 minutes, color
Republic of China: includes increased farm and fish production.

"Ted Williams and the Atlantic Salmon" - 28 minutes, color
Techniques used to catch salmon.

"Two Faces of the Sea" - 24 minutes, color
Maine fishing community; harvesting the finest seafood in the world. (Available only to college level and above)

"The Sea and the Japanese" - 20 minutes, color
Various marine products, including sea farming to increase food resources.

Fishing USA - free catalog of films
c/o Association Films, Inc.
866 Third Avenue
New York, NY 10022

Royal Danish Consulate General
280 Park Avenue
New York, NY 10017

"Danish Fish" - 21 minutes, color, music
Modern Danish fish from catch to export.

"The Greenland Sea" - 12 minutes, color
Development of cod fishing in Denmark.

Virginia Polytechnic Institute
and State University
Film Library, 12 Patton Hall
Attention: Film Librarian
Blacksburg, VA 24061
(703) 961-6718

"Dressing the Finfish" - 23 minutes, color, 16 mm
Also 3/4" videotape cassette.

"Picking the Blue Crab" - 8 minutes, color, 16 mm
Also 3/4" videotape cassette.

Check your state media catalog for additional films.

FREE FILMSTRIP BIBLIOGRAPHY

U.S. Department of Commerce
9450 Gandy Boulevard
St. Petersburg, FL 33702

"Seafood - the Delicious Way to Stay Healthy"
Filmstrip, record, recipes, brochures, booklet

U.S. Department of Commerce
610 S. Canal Street
Room 816
Chicago, IL 60607

"Siren Song of Seafood"
Filmstrip, record, teacher's guide

National Marine Fisheries Service
Seafood Quality and Inspection Division
DOC/NOAA
Washington, DC 20235

3 filmstrips, 3 cassettes, teacher's manual, handouts

"The Great Protein Mystery"
"Buying with Confidence"
"The Mark of Quality"

Bureau of Commercial Fisheries
Washington, DC

"The Big Fish-In"

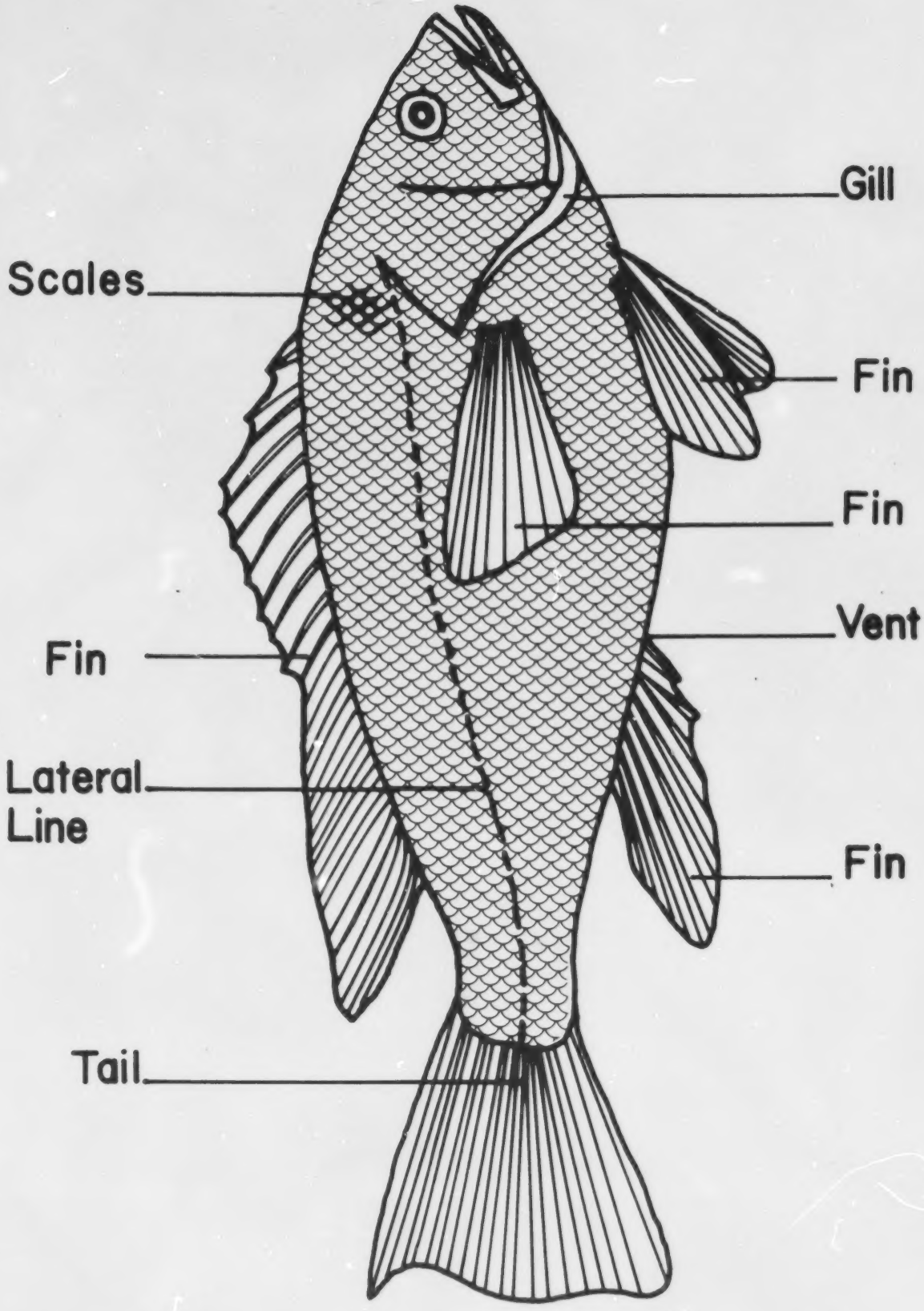
OTHER RESOURCE MATERIAL

Bureau of Marketing and Extension Services
Florida Department of Natural Resources
202 Blount Street
Tallahassee, FL 32304

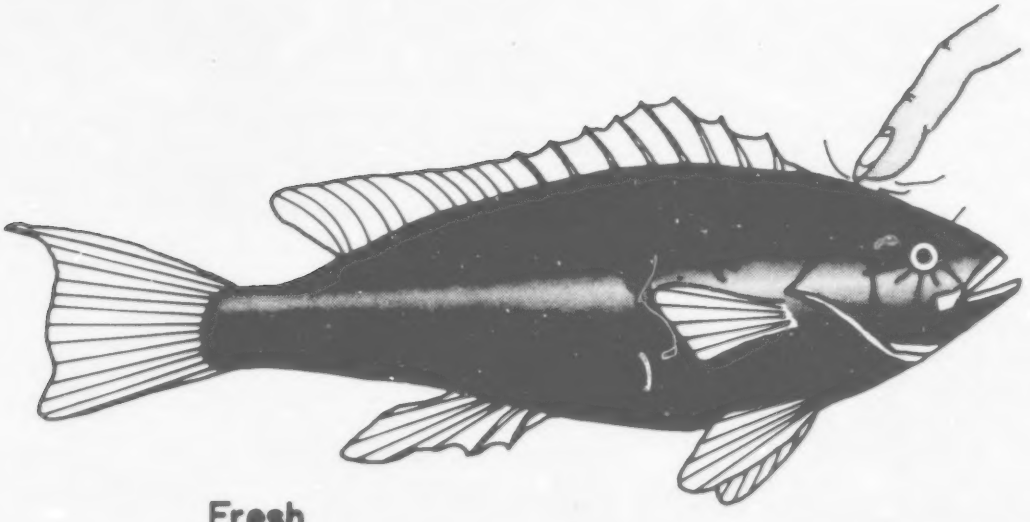
National Marine Fisheries
100 E. Ohio Street
Room 526
Chicago, IL 60611

In addition, check in your state for a Seafood Council, Department of Commerce office, National Marine Fisheries Service office, or other state agencies for free and inexpensive audio-visual materials.

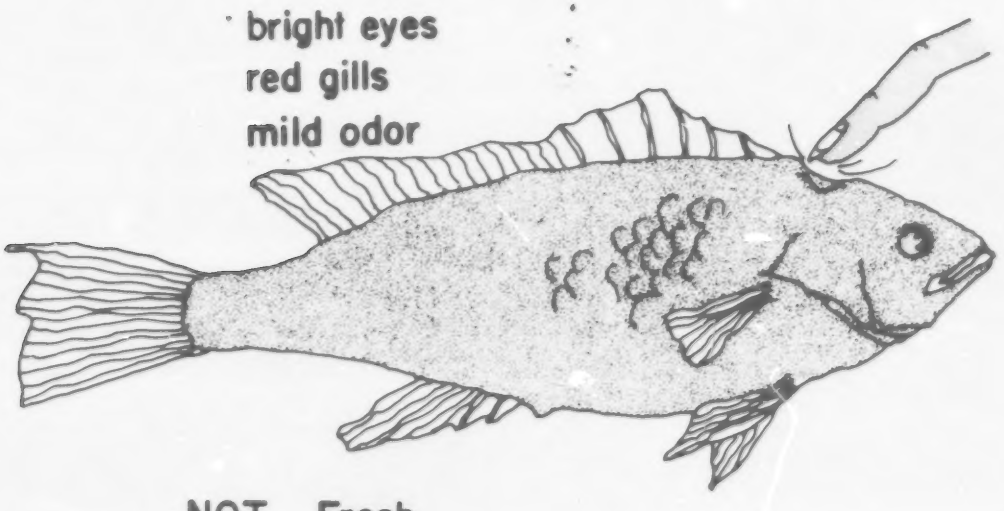
APPENDIX


Gill
Scales
Fin
Fin
Vent
Fin
Lateral
Line
Fin
Tail

CHARACTERISTICS OF QUALITY

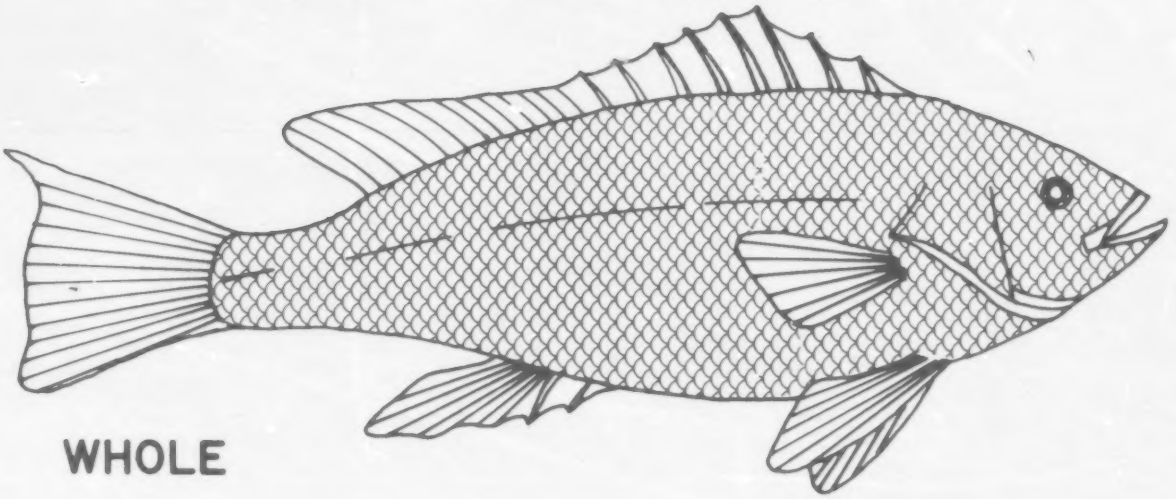


Fresh
- firm flesh
- bright eyes
- red gills
- mild odor

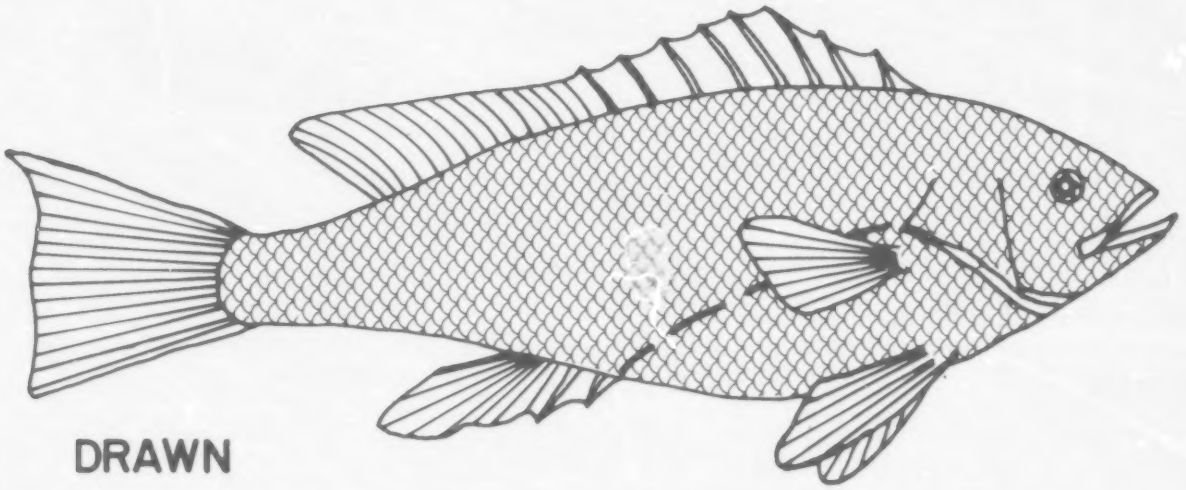


NOT Fresh
- spongy flesh
- dull sunken eyes
- greyish gills
- strong odor

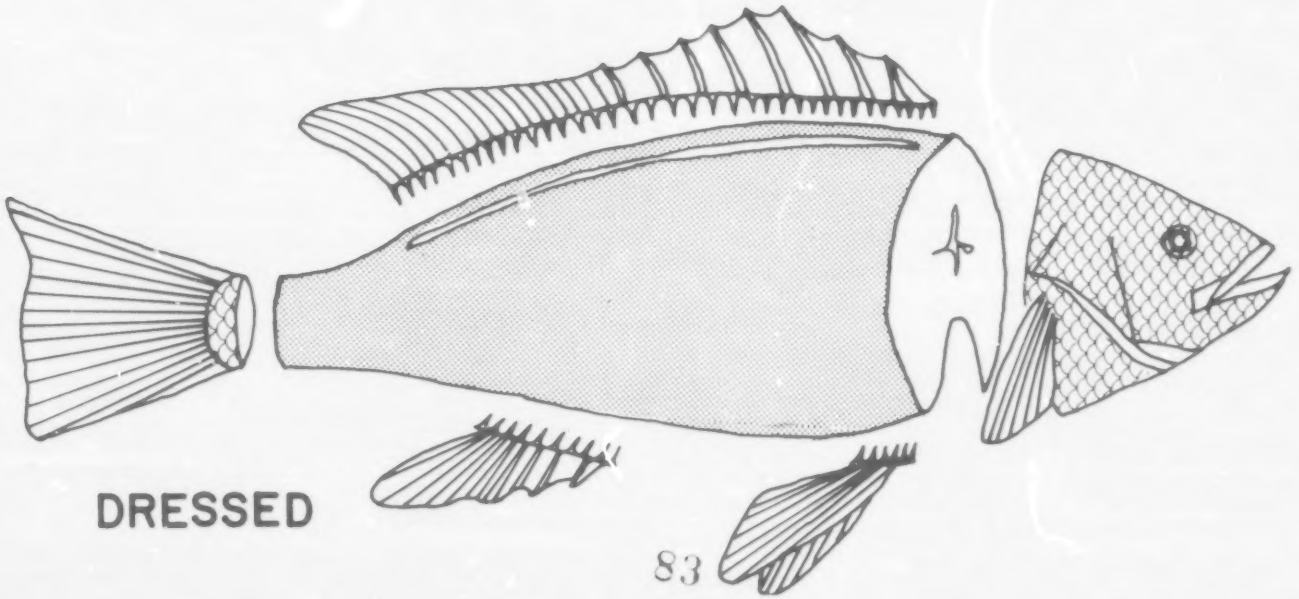
CUTS AND FORMS OF FISH



WHOLE

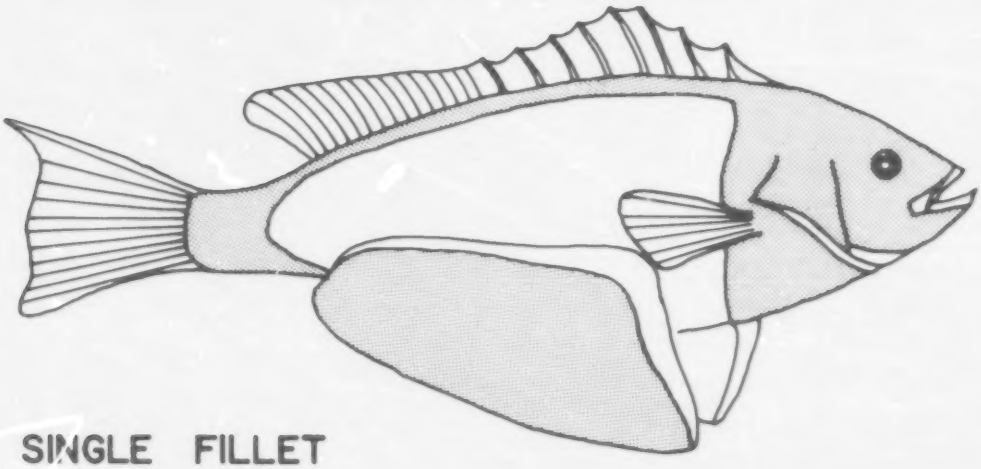


DRAWN

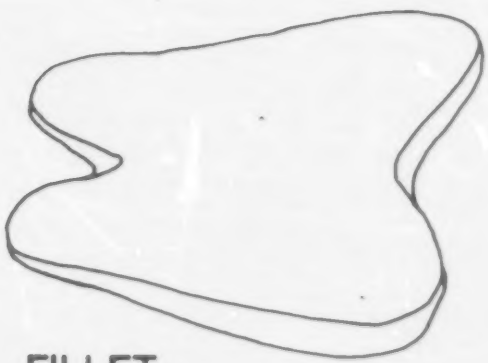


DRESSED

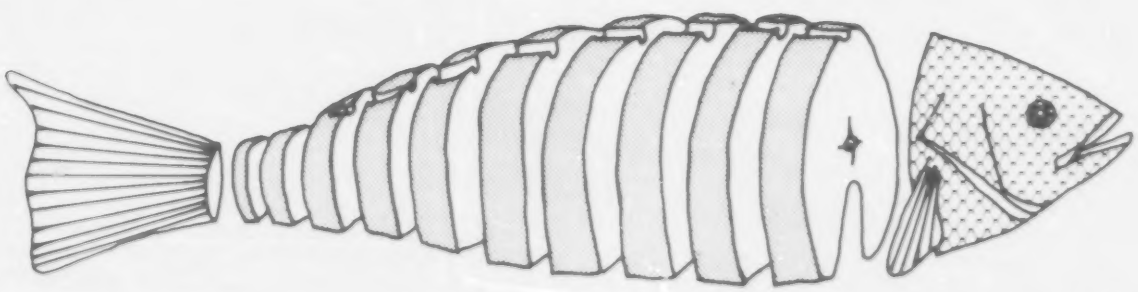
CUTS AND FORMS OF FISH (continued)



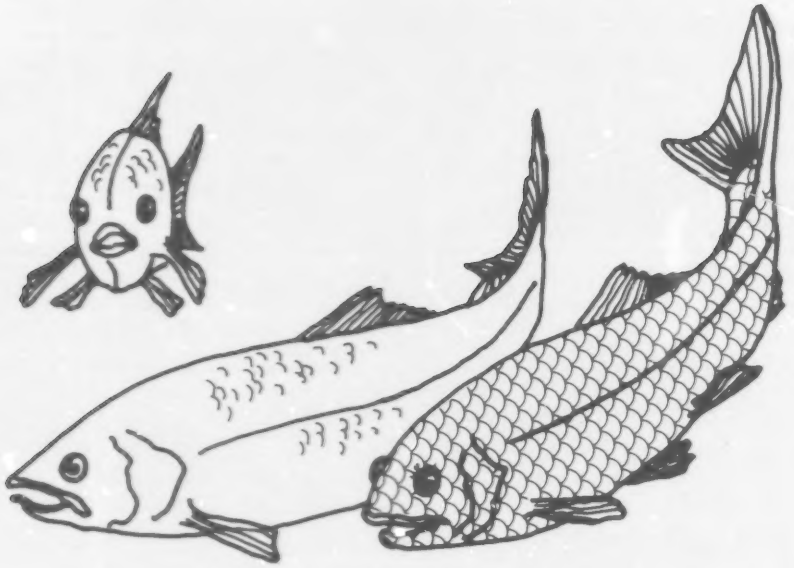
SINGLE FILLET



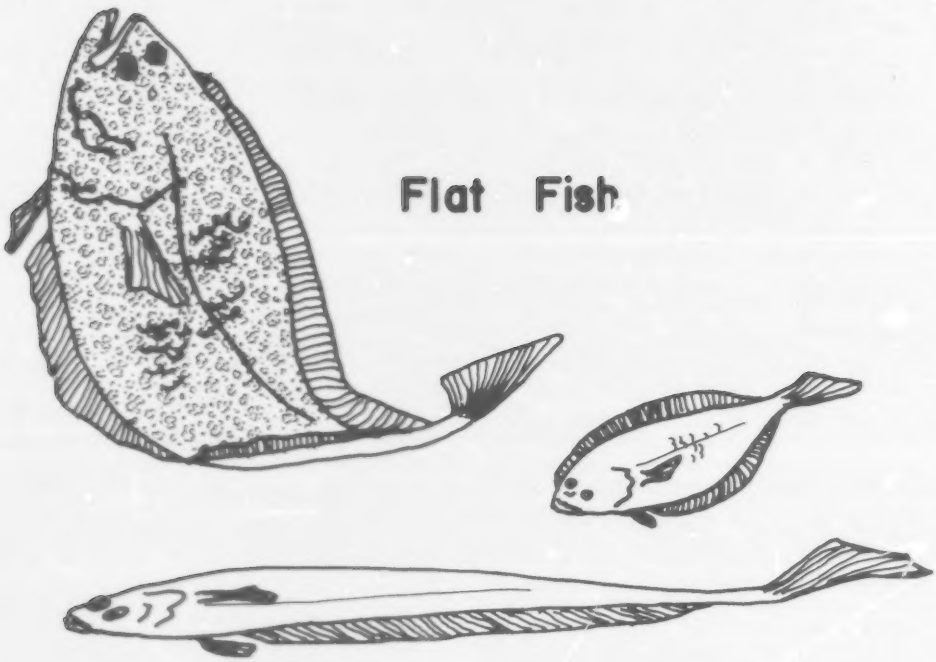
BUTTERFLY FILLET



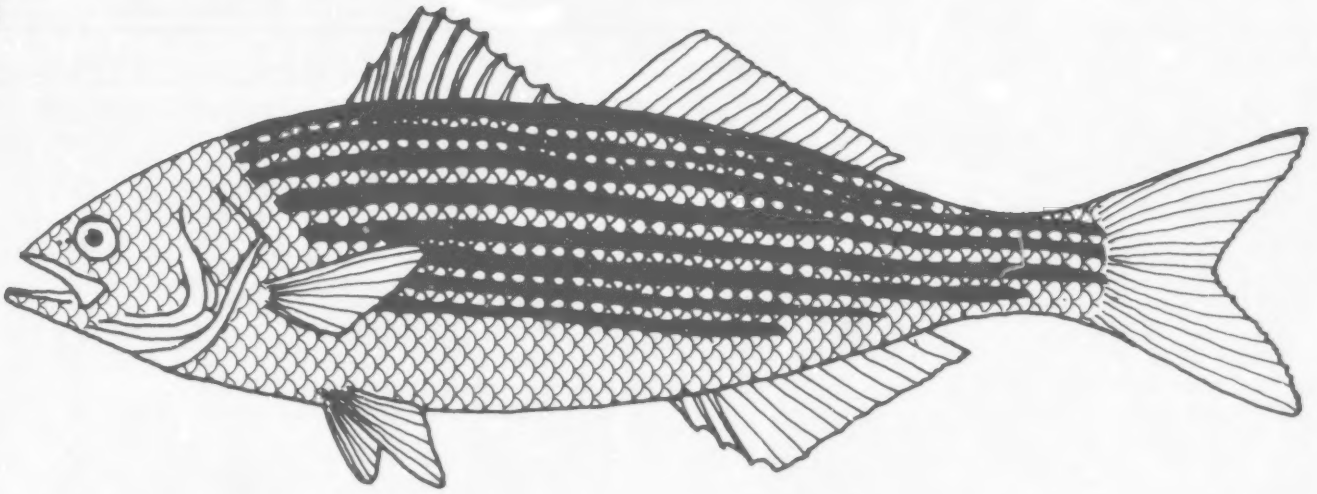
STEAKS and CHUNKS



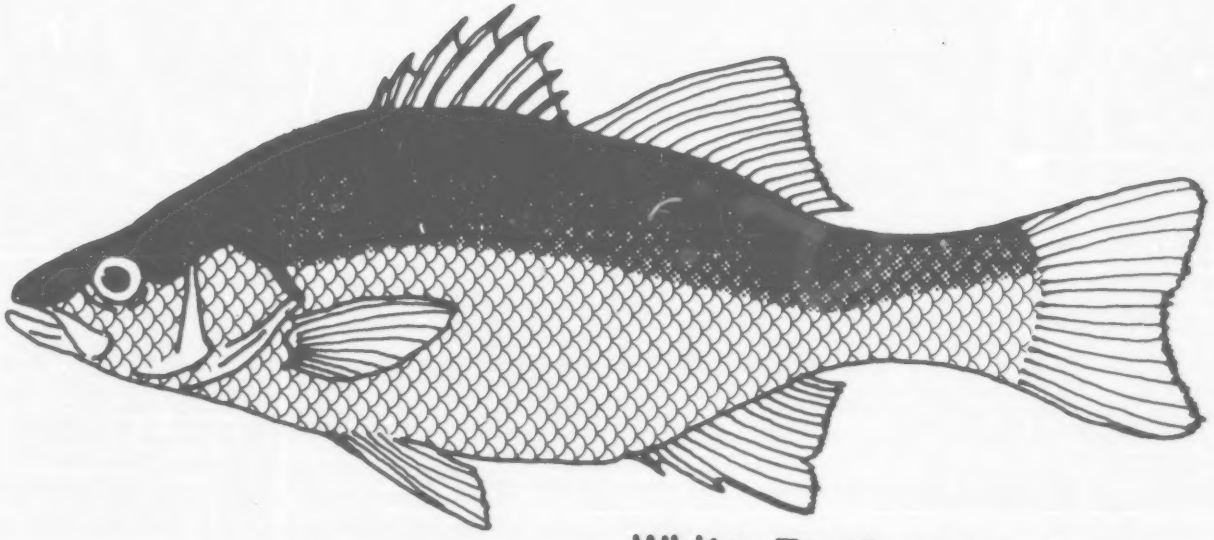
Round Fish



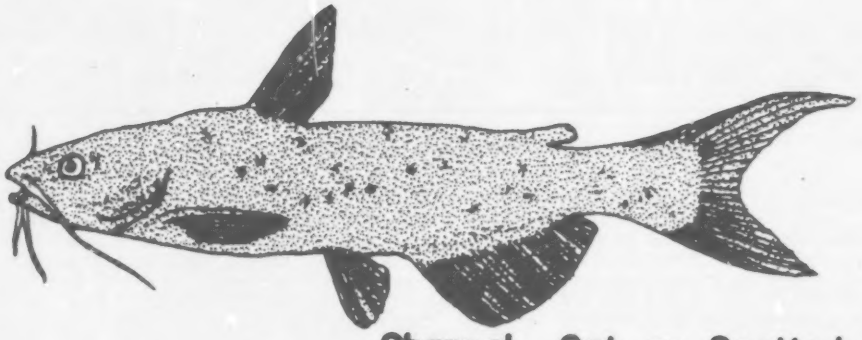
Flat Fish



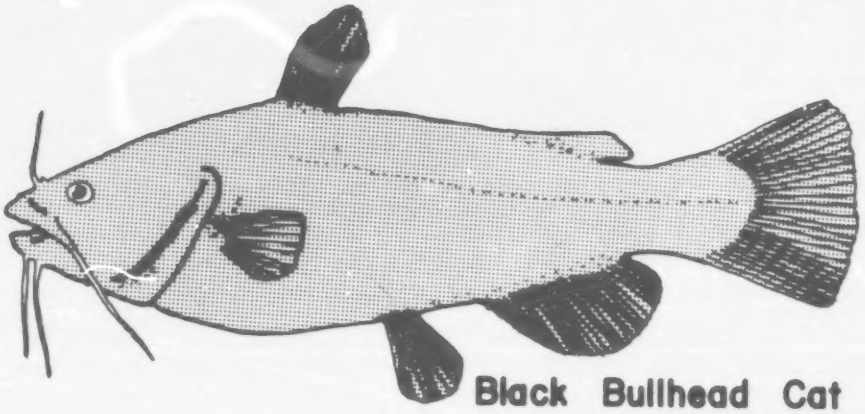
Striped Sea Bass



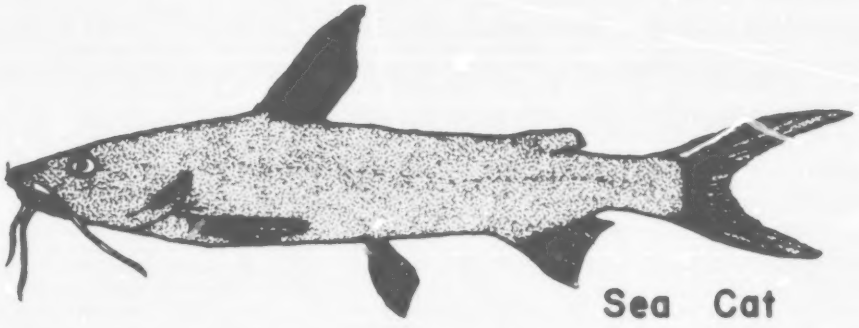
White Fresh water Bass



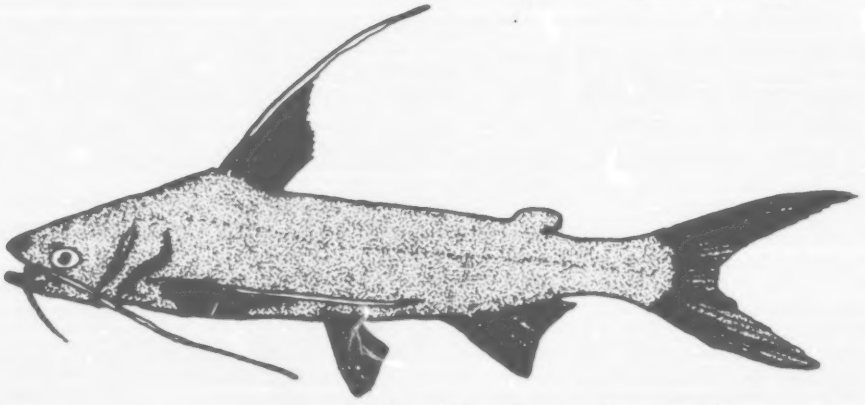
Channel Cat or Spotted Cat



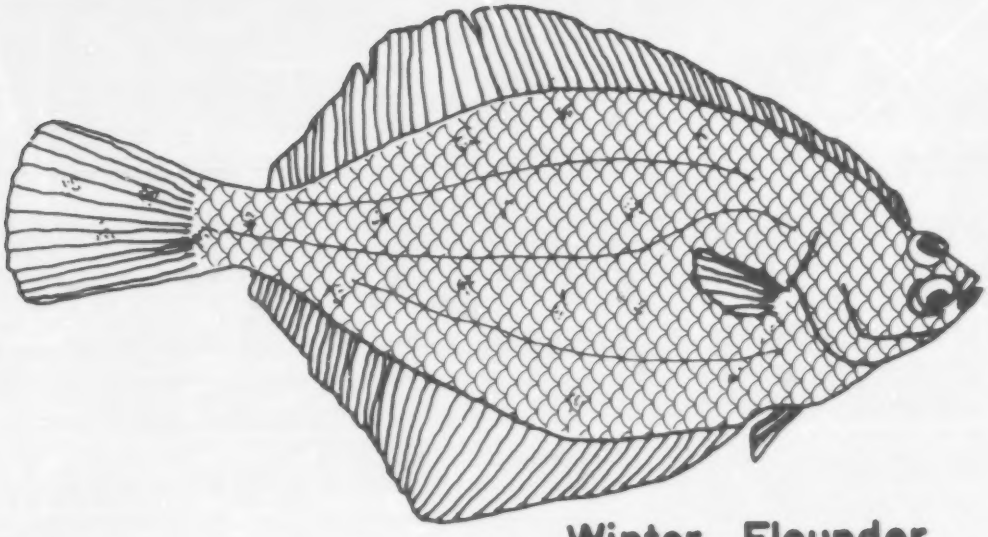
Black Bullhead Cat



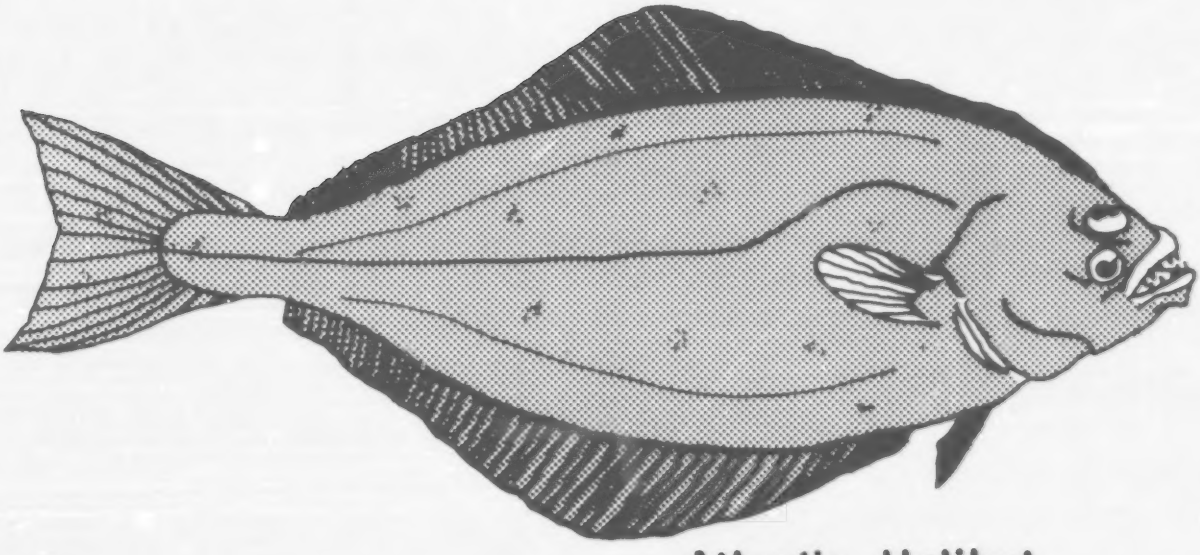
Sea Cat



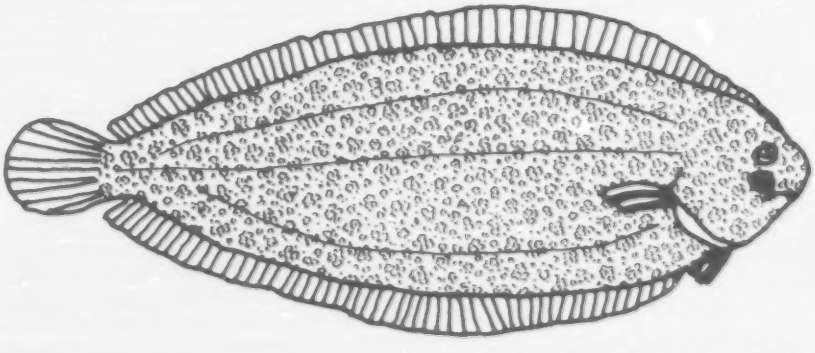
Gaff-Topsail Cat



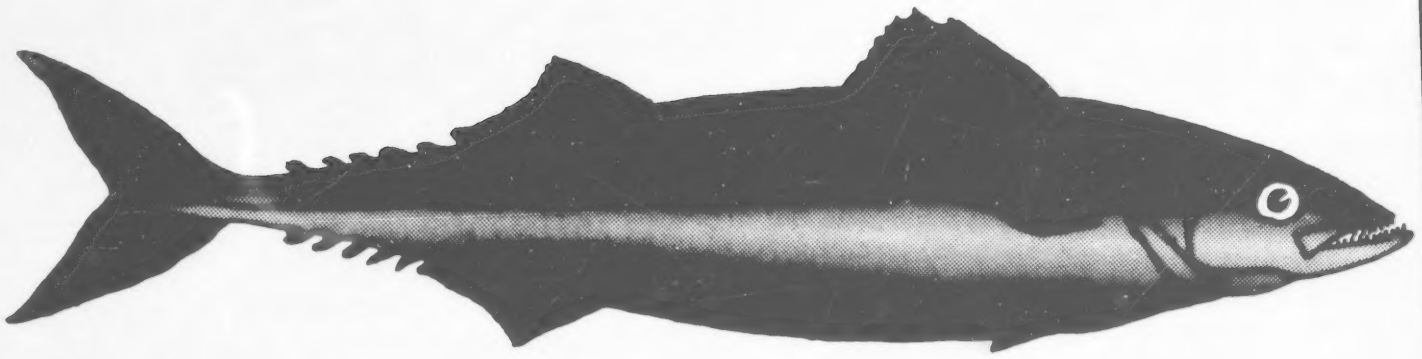
Winter Flounder



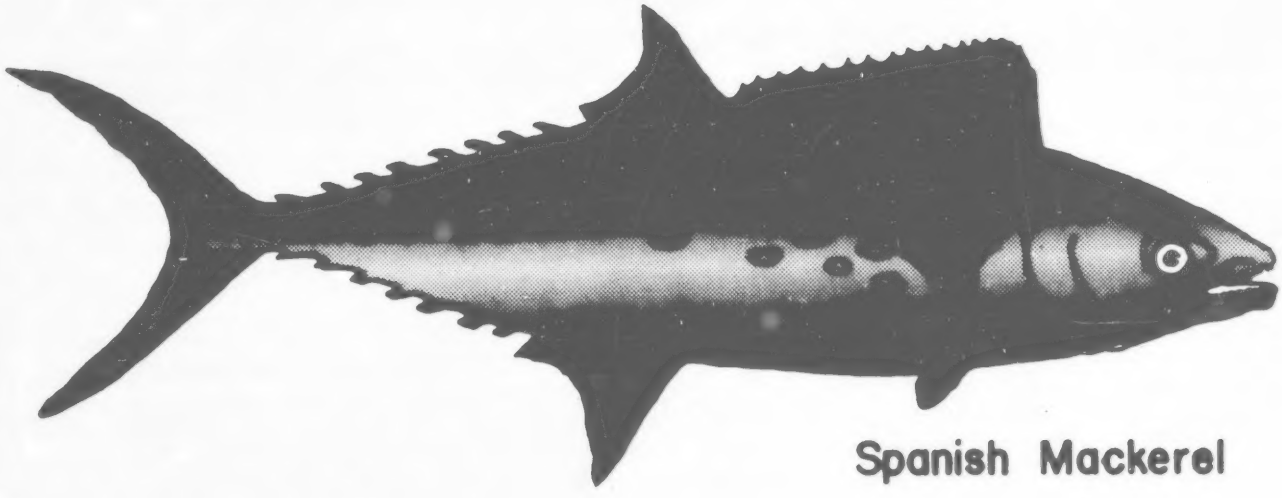
Atlantic Halibut



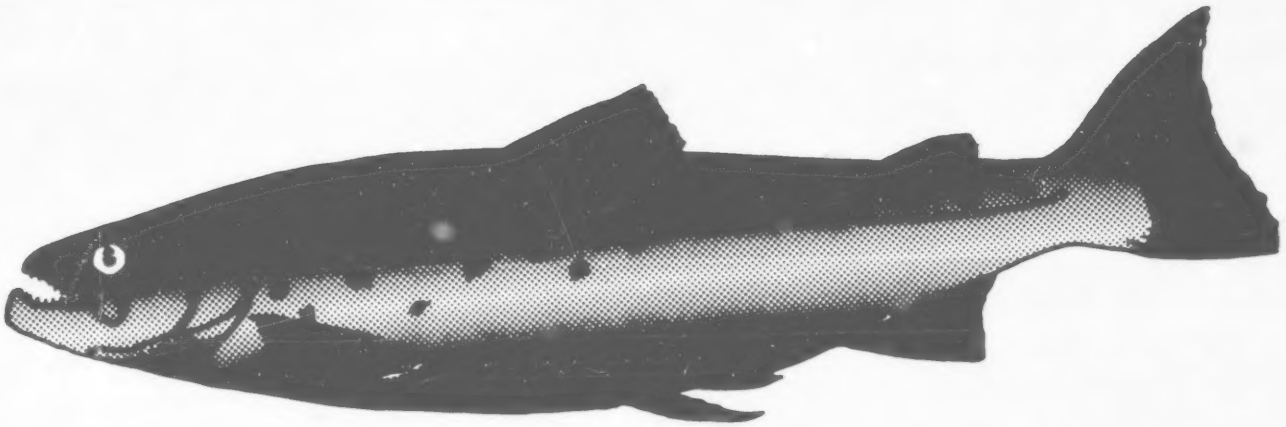
European Sole



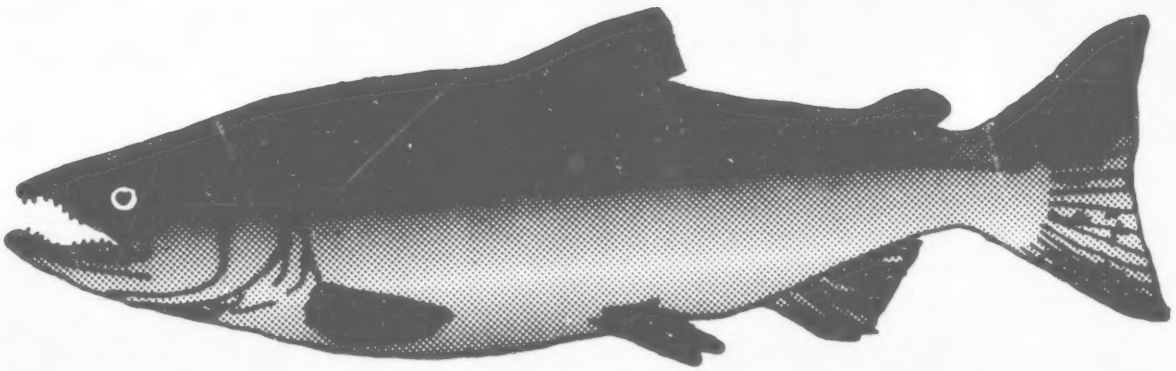
Atlantic Mackerel



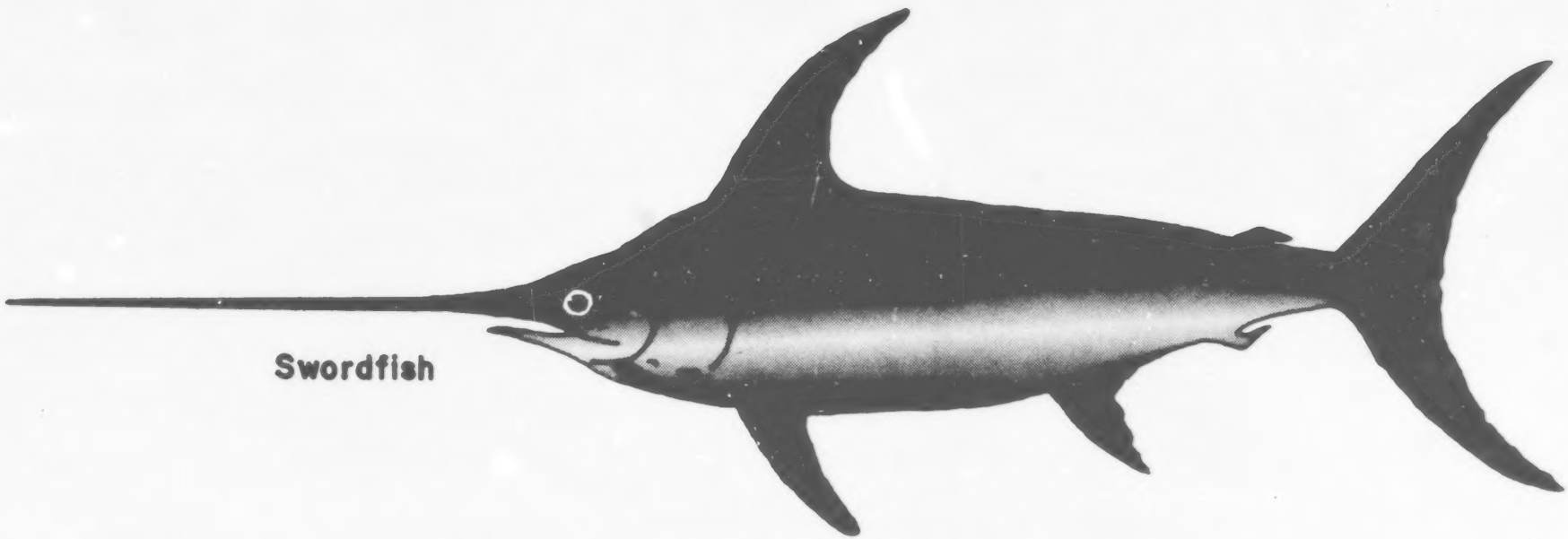
Spanish Mackerel



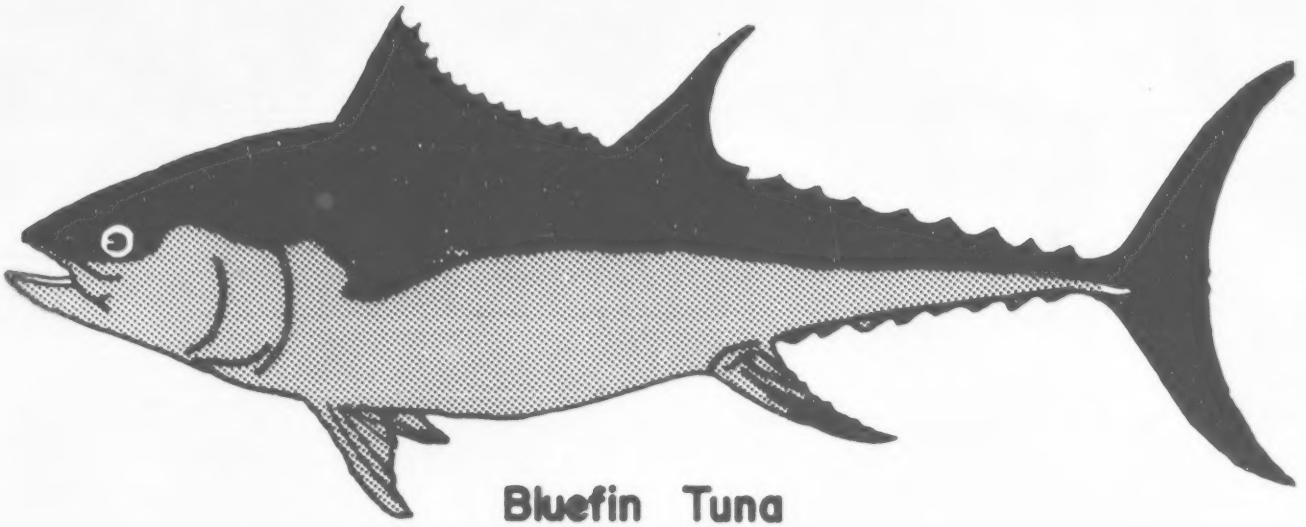
Atlantic Salmon



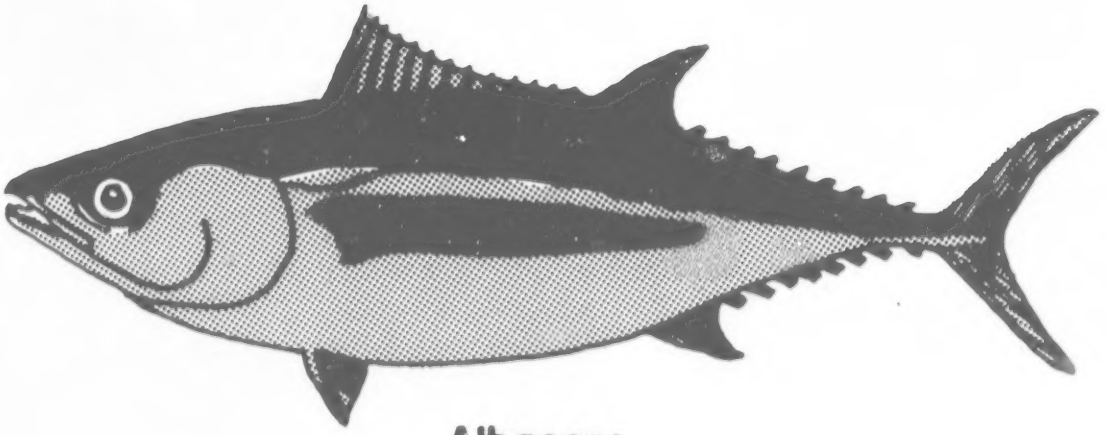
Chinook Salmon



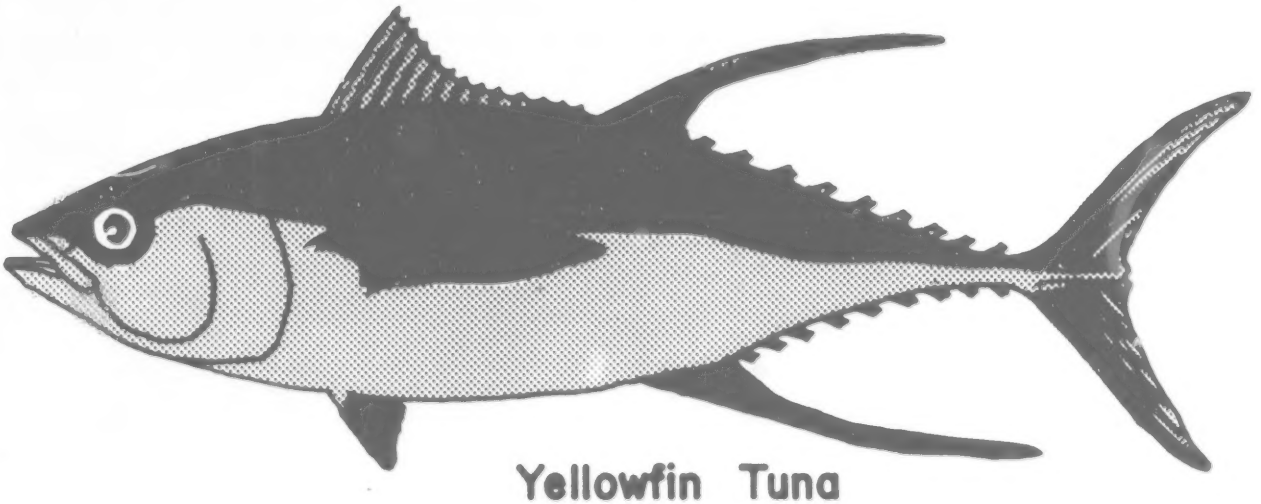
Swordfish



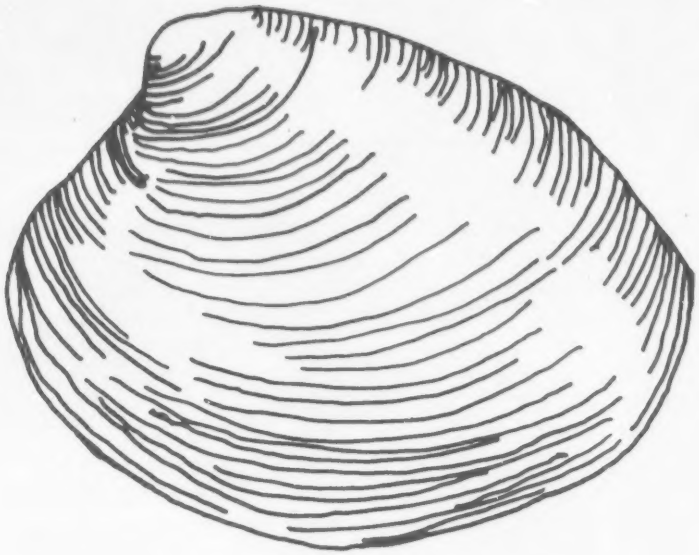
Bluefin Tuna



Albacore

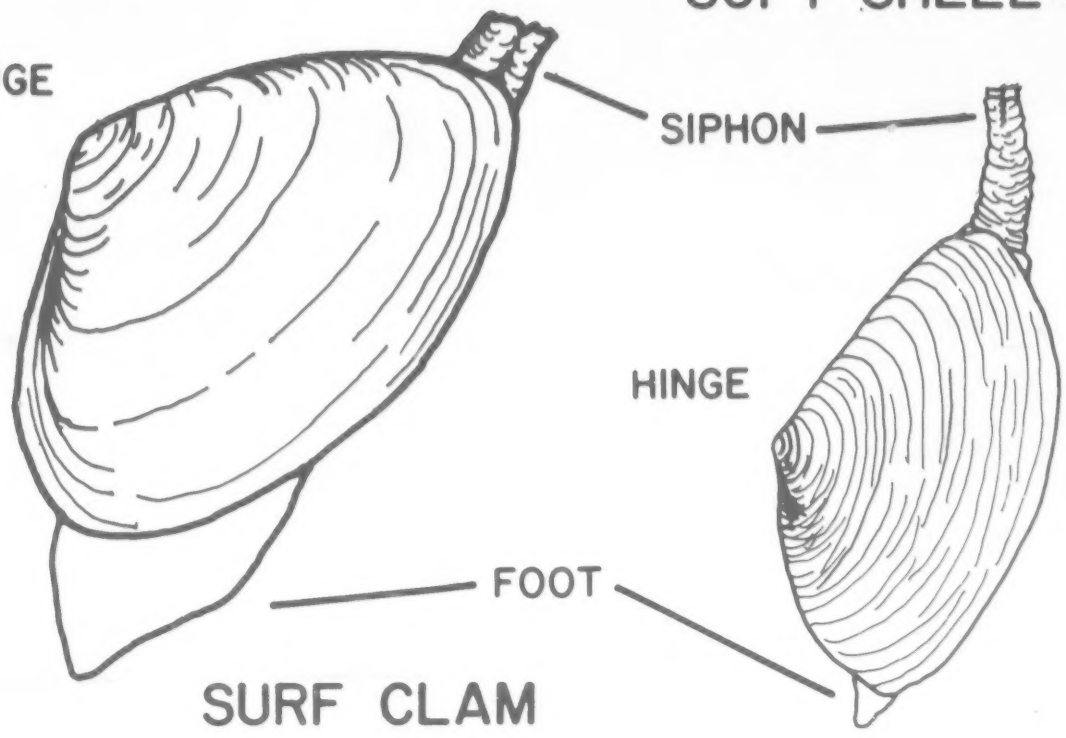


Yellowfin Tuna

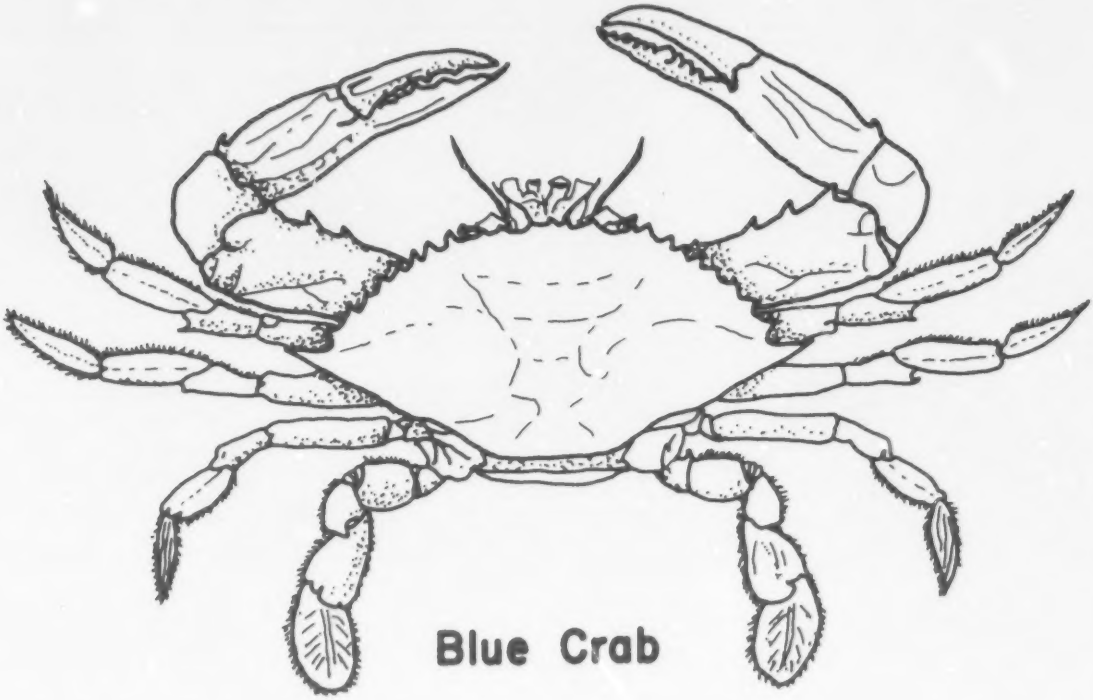


BUTTER CLAM

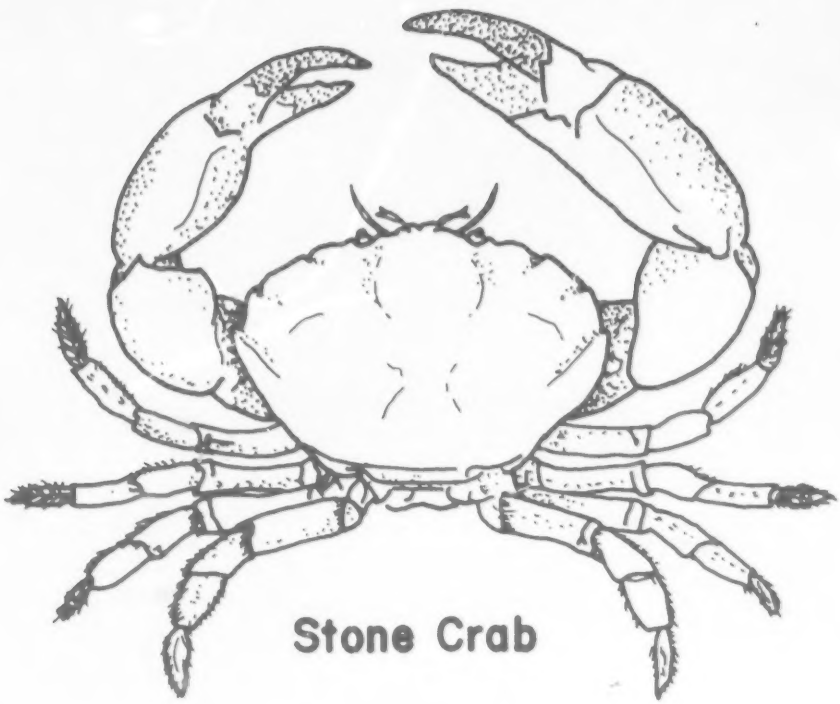
SOFT SHELL CLAM



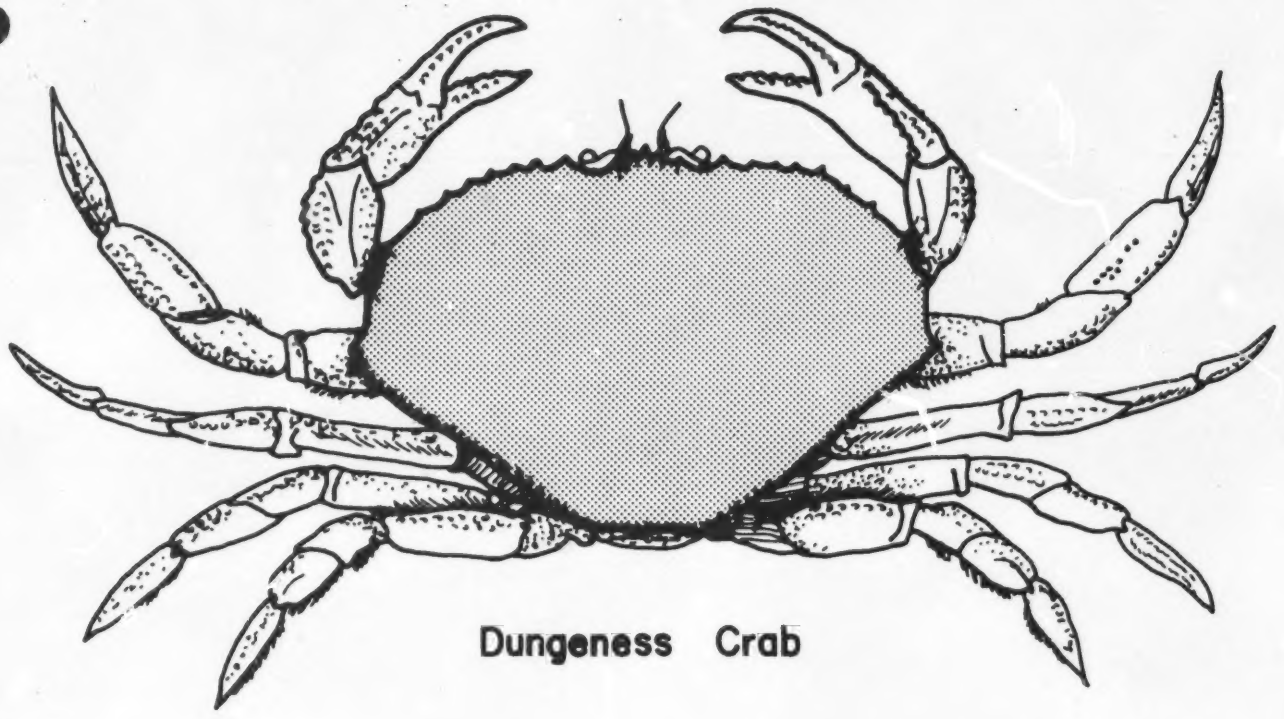
SURF CLAM



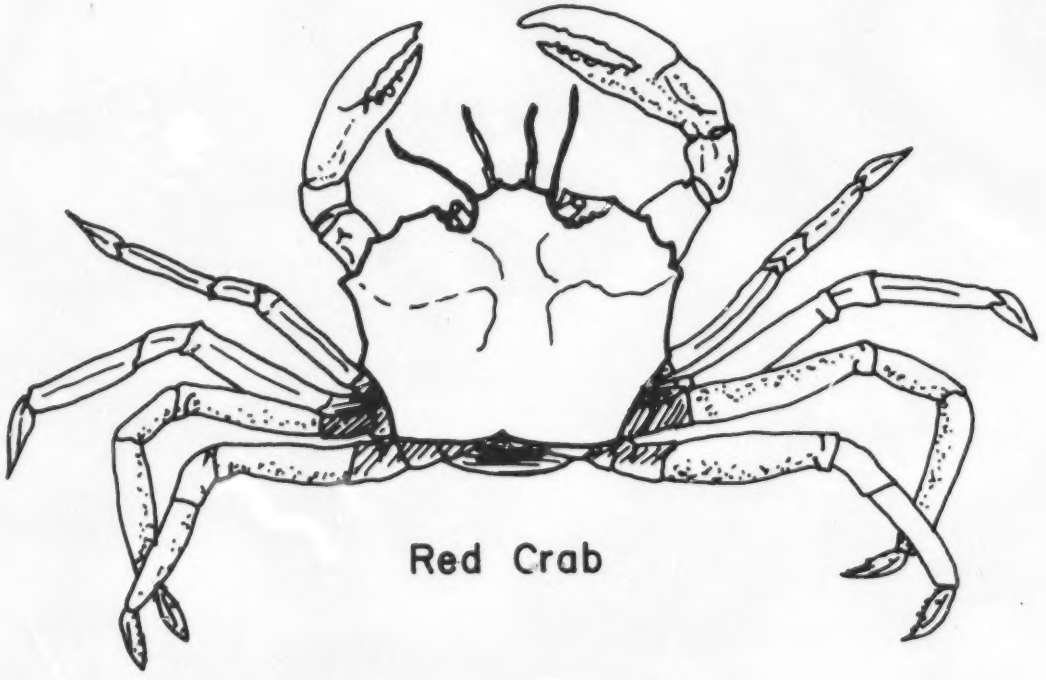
Blue Crab



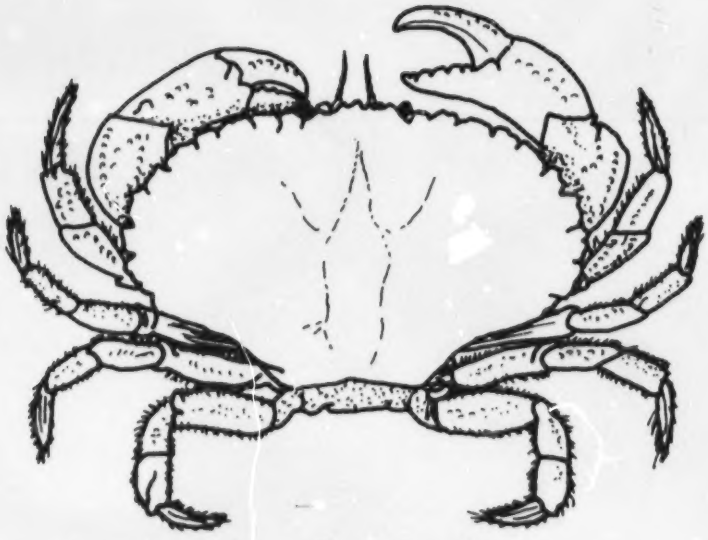
Stone Crab



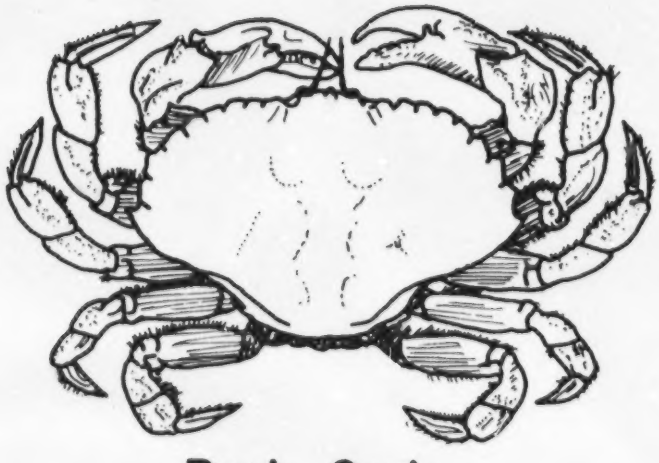
Dungeness Crab



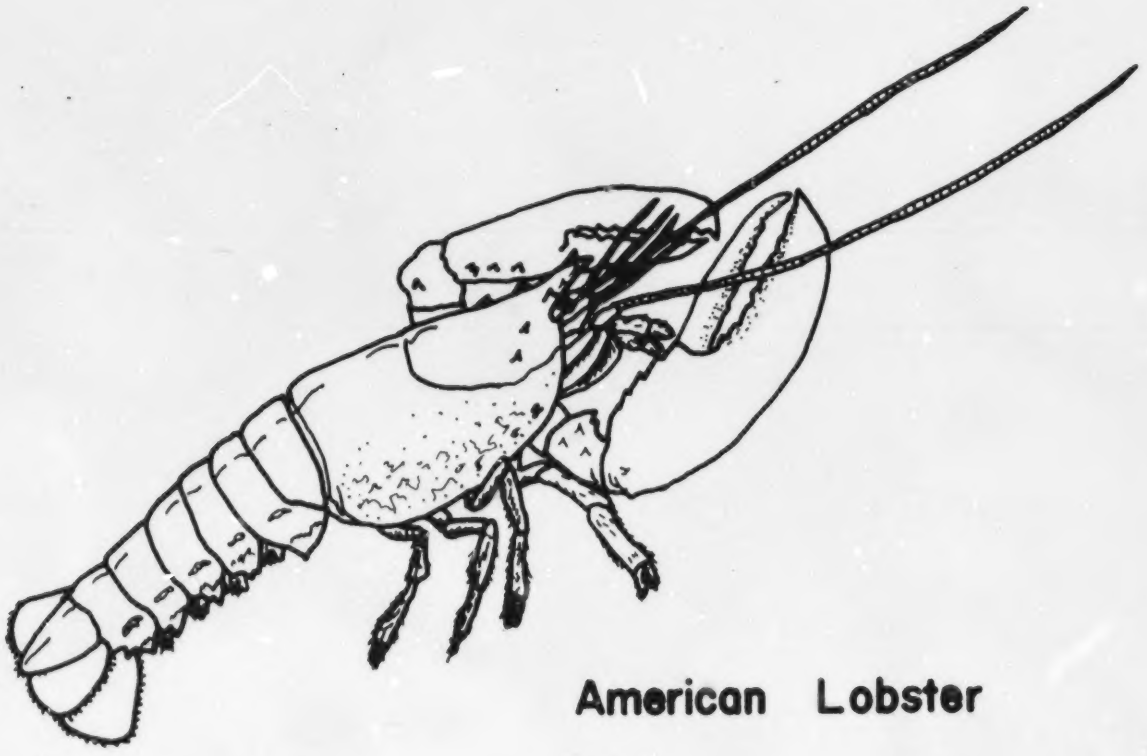
Red Crab



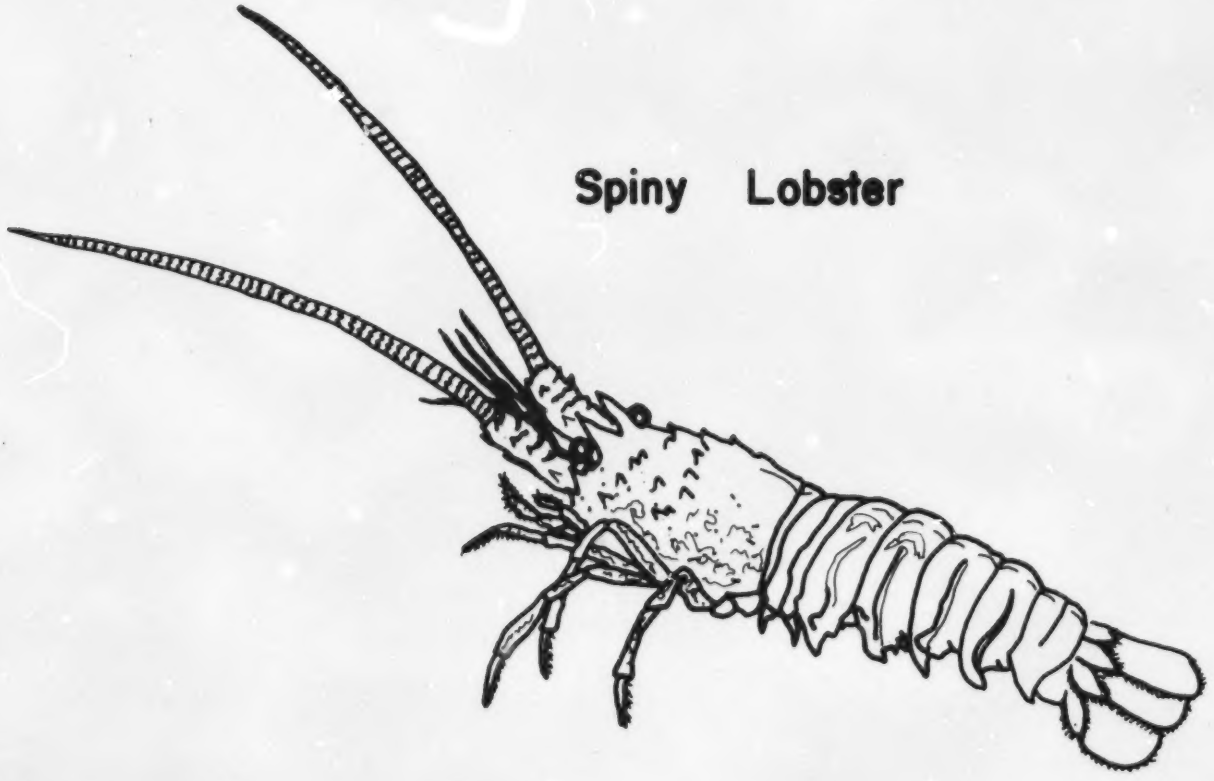
Jonah Crab



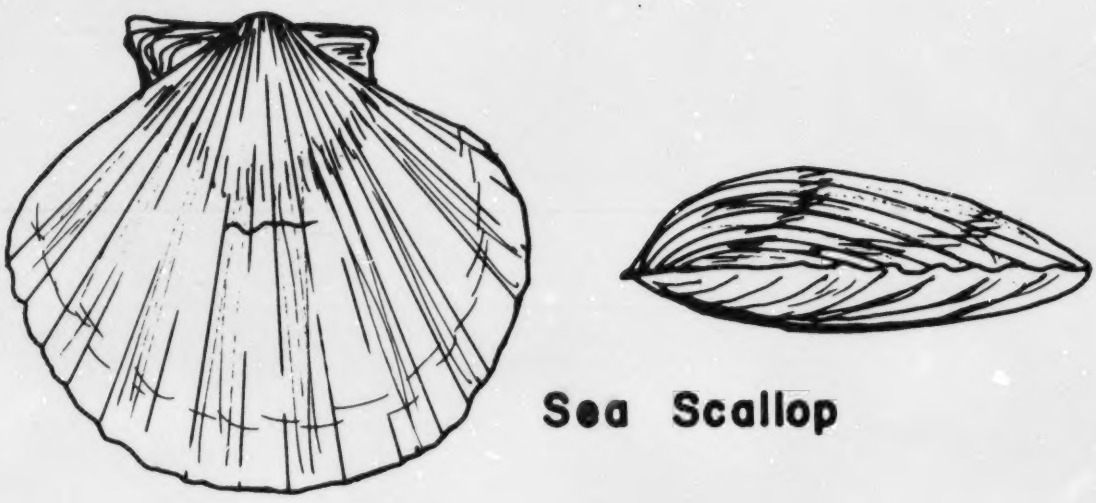
Rock Crab



American Lobster

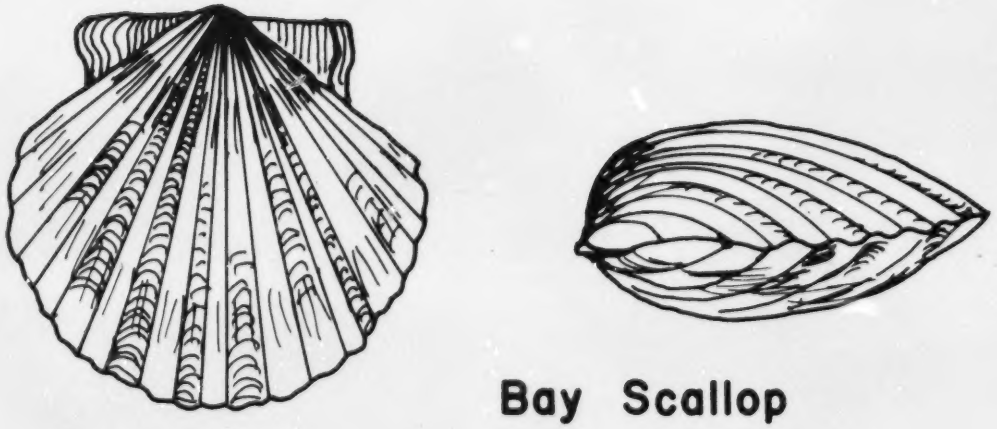


Spiny Lobster

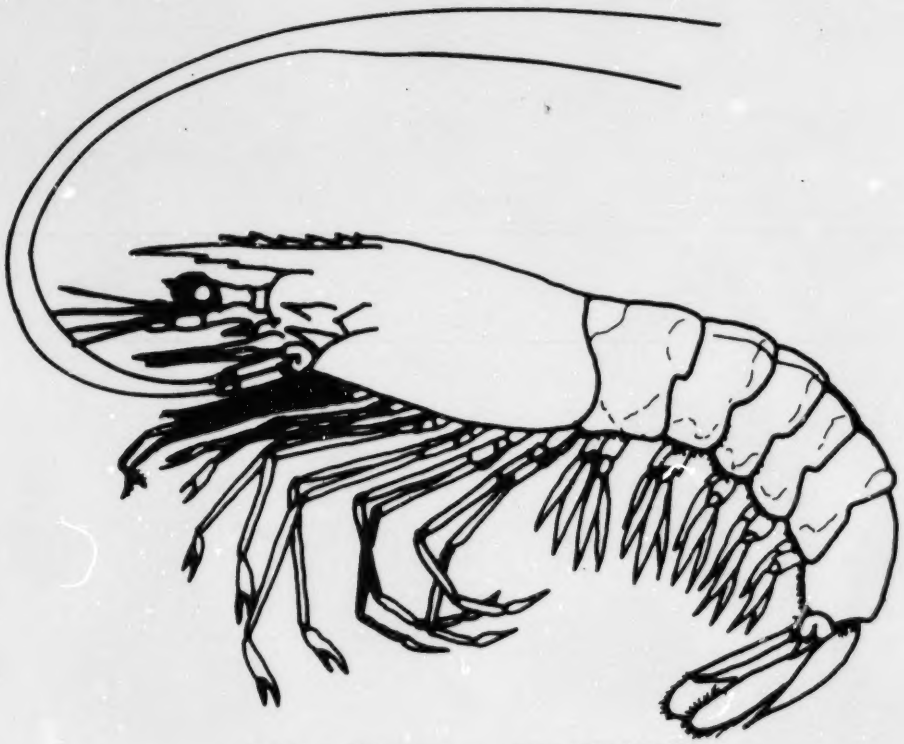


Sea Scallop

Calico Scallop



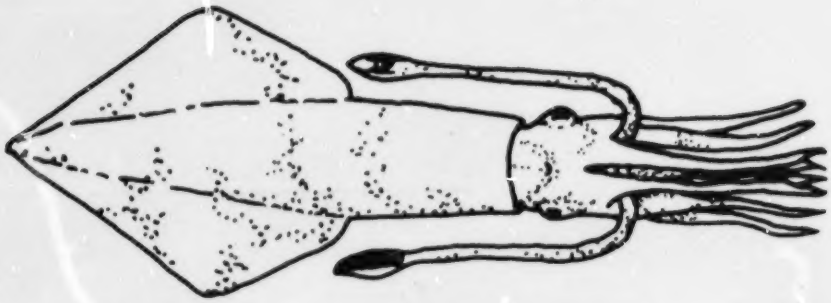
Bay Scallop



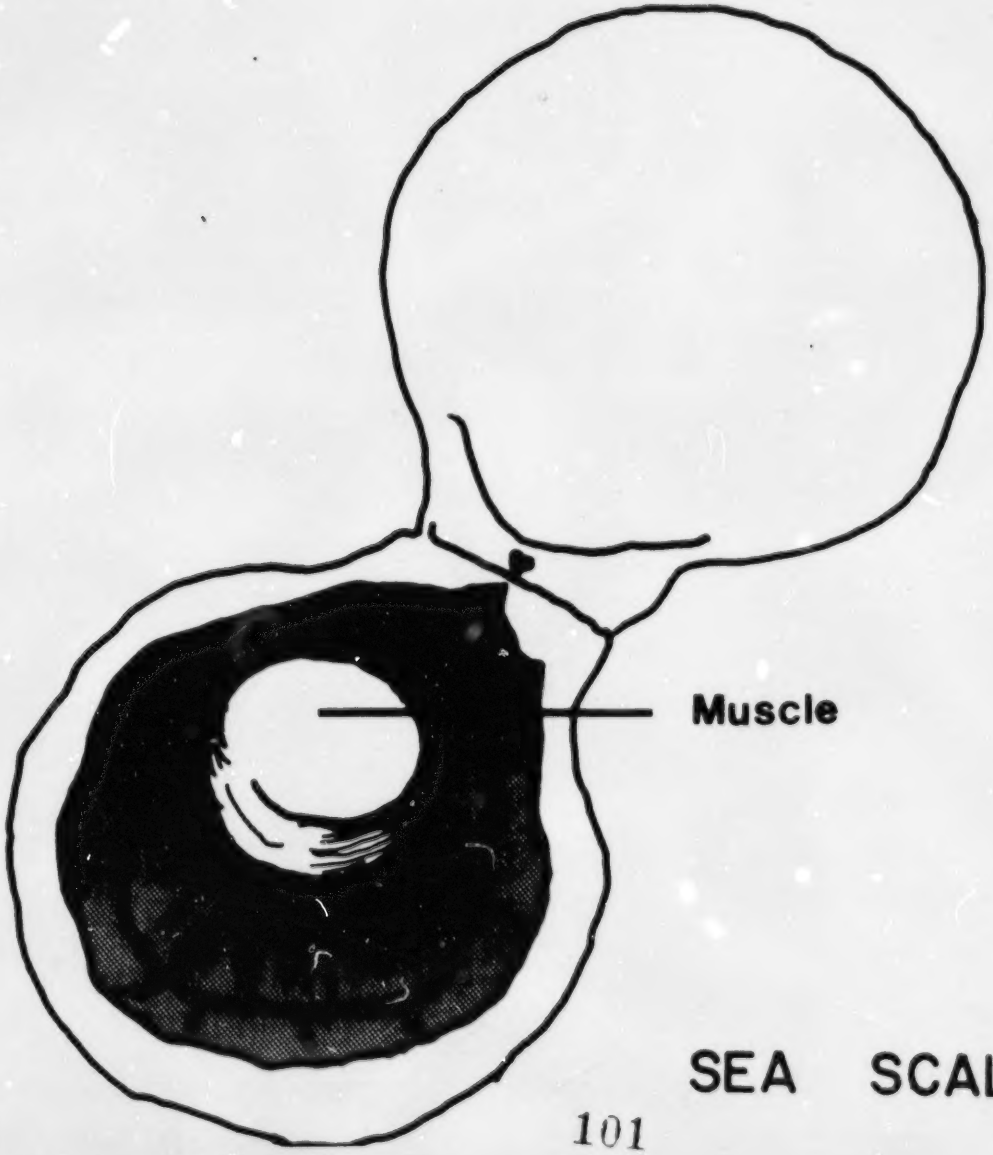
WHOLE SHRIMP

Normal Shrimp

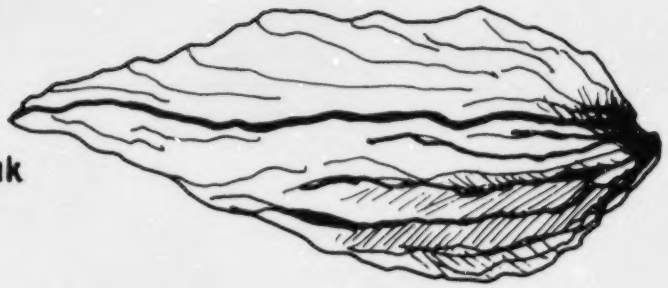
Black Spotting



SQUID

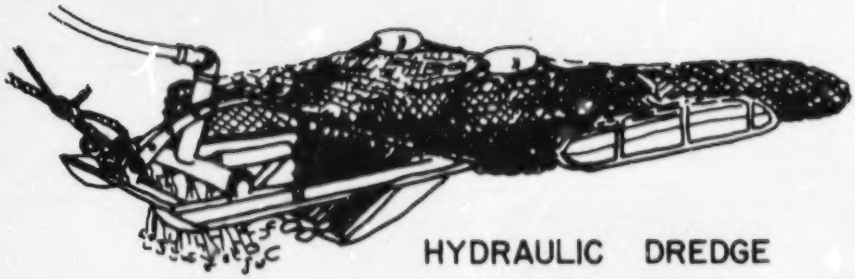


SEA SCALLOP

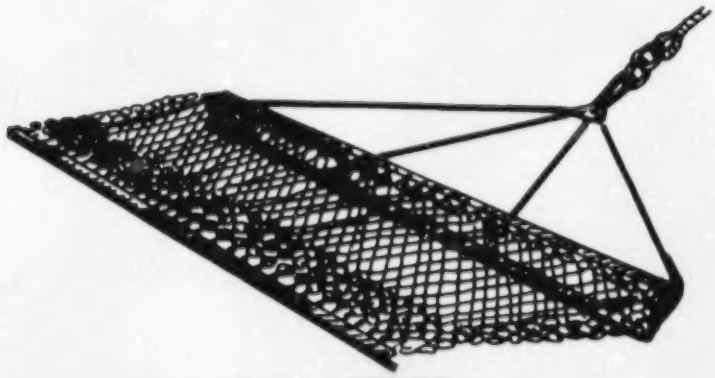


OYSTER

OYSTER WITH PEA CRAB

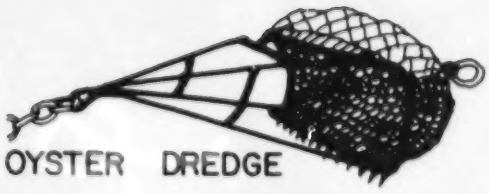


HYDRAULIC DREDGE



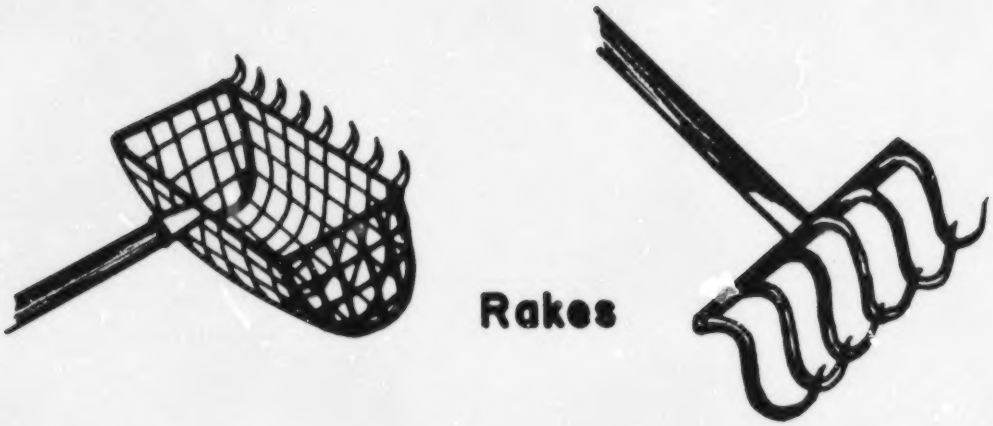
BAR DREDGE

CHAIN DREDGE



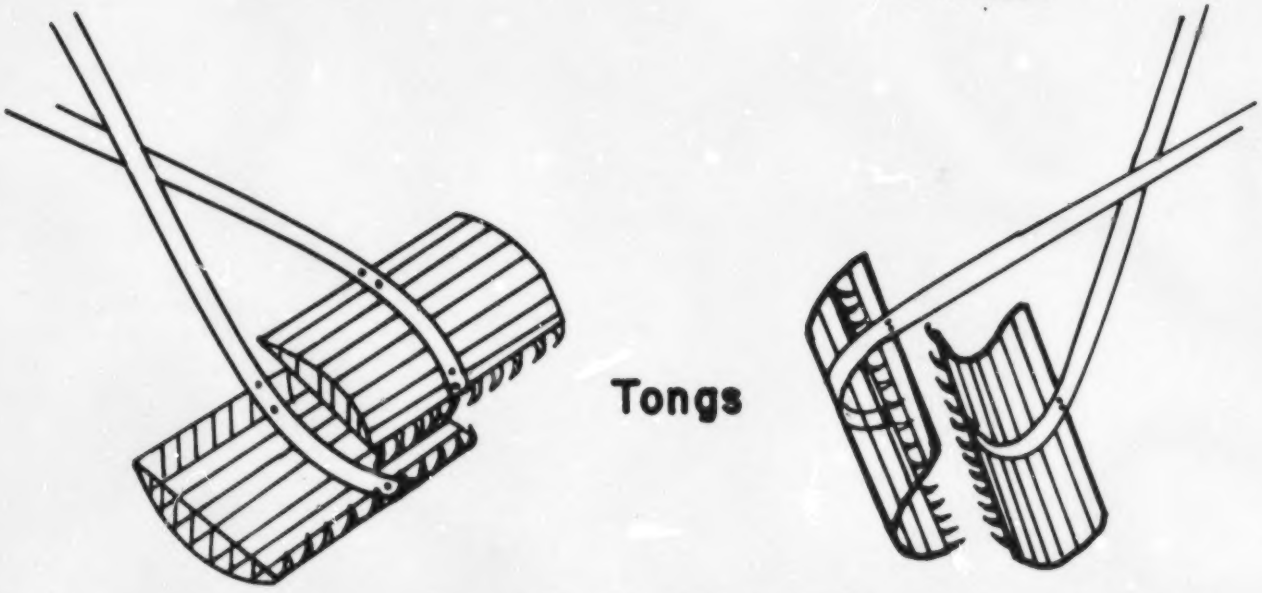
OYSTER DREDGE

DREDGES



Rakes

Hoes

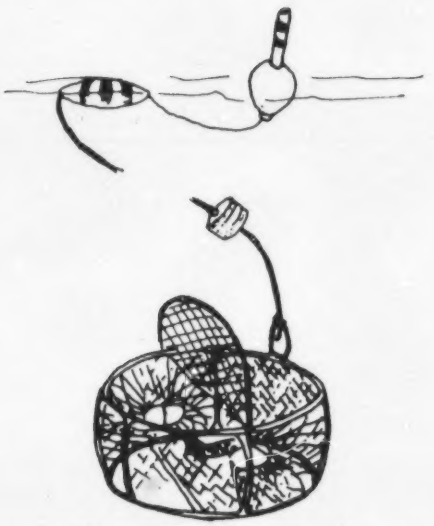


Tongs

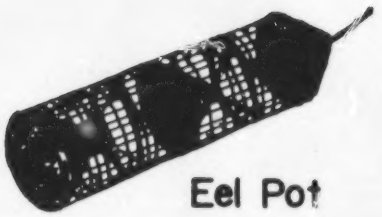
Hand Operated

SHELLFISH GEAR

Atlantic Lobster Pot

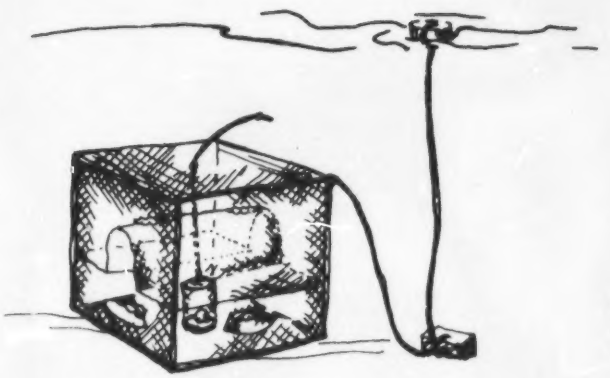


Dungeness Crab Pot



Eel Pot

King Crab Pot



Atlantic Hard Crab Pot

Fishery products prepared under approved, sanitary conditions.

Seafood products that are uniform in size, free of blemishes and defects, in excellent condition, and possess good flavor and all the characteristics of the species